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ABSTRACT

This implementation manual has been developed to describe four model mathematics and science programs designed to increase African-American students' interest in mathematics and science. The manual will help affiliates of the Urban League to mobilize existing community resources to achieve the goals of the national education initiative. The four models described and illustrated in this manual are (1) an academic-assistance program that develops after-school tutorials in the Chicago (Illinois) Urban League Black Churches Program; (2) collaborative efforts by community-based organizations and a school district in the Tri-County (Peoria, Illinois) Urban League's Tommorrow's Scientists, Technicians, and Managers (TSTM) Project; (3) parent involvement and parent education in the Indiana Urban League's Family Math Program; and (4) the use of mathematics and science mentors from the black community in the Quad County (Illinois) Urban League's TSTM Project. Information for each model includes a program description, curriculum-development and curriculum-use training methods, program-evaluation and program-impact analysis, program effectiveness, and program support. Resource materials for each model are included. (SLD)

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The American Honda Foundation / National Urban League Math and Science Model Programs Manual

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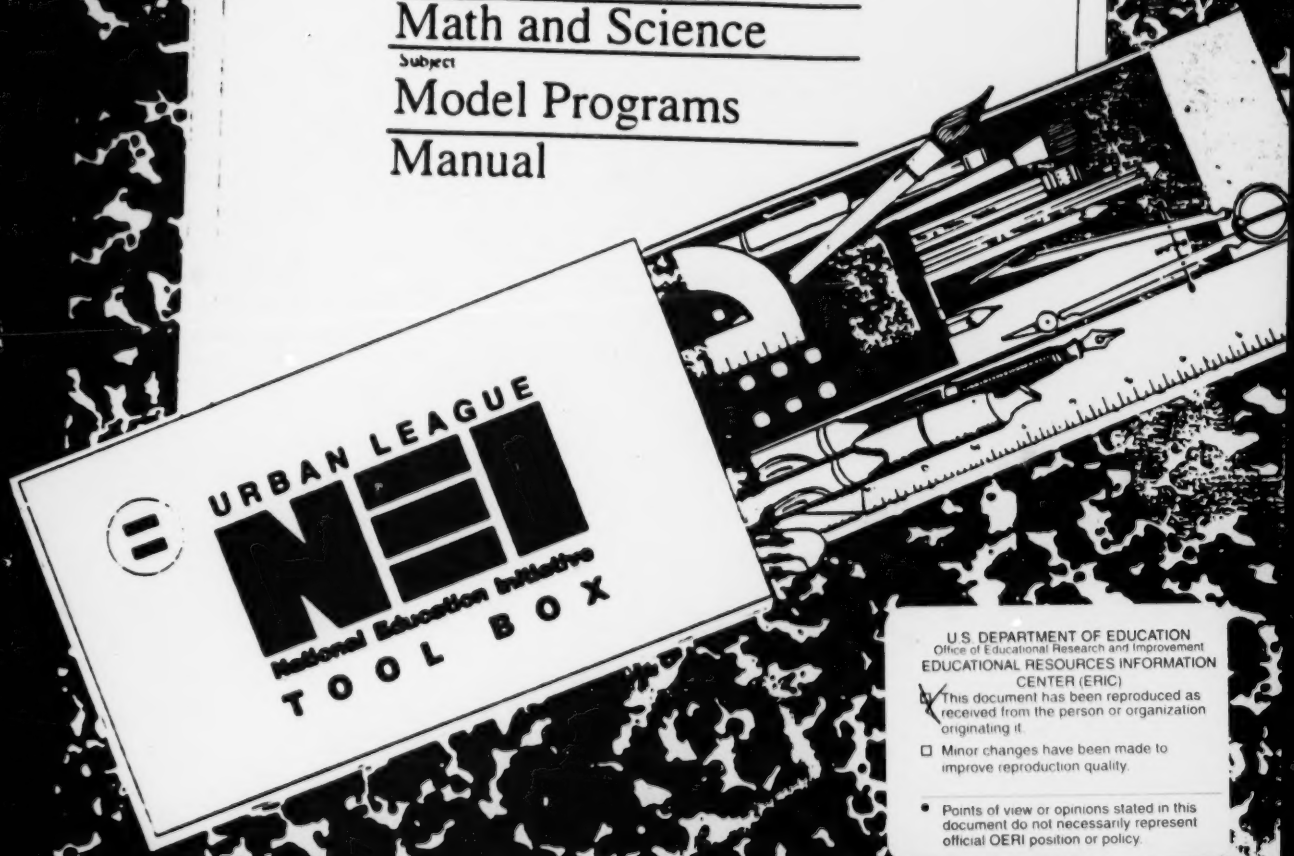

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The American Honda

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Model Programs

Manual

The American Honda Foundation / National Urban League Math and Science Model Programs Manual

Name

Subject

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National Urban League, Inc.

Founded in 1910, the National Urban League is the premier social service and civil rights organization in America. The League is a nonprofit, community-based organization headquartered in New York City, with 113 affiliates in 34 states and the District of Columbia. The mission of the National Urban League is to assist African Americans in the achievement of social and economic equality. The League implements its mission through advocacy, research, program services, and bridge building.

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PREFACE

Many efforts have been made by educators, advocates, and industry to improve the teaching of mathematics and science in the United States as well as improve student awareness and participation in related careers. The chronic under representation of female, African American and Latino students in mathematics-and science-related careers in particular has led to the development of special initiatives. For instance, community groups have played a crucial role in supplementing school-based course-work and providing academic enrichment and career information. However, despite community and school focused initiatives, African Americans and Latinos continue to lag behind.

Reports by the National Assessment of Educational Progress, National Education Goals Panel and the National Assessment Governing Board have assessed the Nation's progress toward meeting educational goals for the year 2000 while tracking student performance in mathematics and science. The most recent report by the National Assessment of Educational Progress discusses the results of the first state-by-state study of levels of math achievement among public school children. The results indicatethat the mathematical skills of our nation's children are insufficient to prepare them for the demands of either college or the work place.The report further indicates that while both Latino and African American students showed much lower average pro-ficiency overall than their white counterparts. (Educational Testing Service, 1991).

The results are dismal, "the nation is not able to reach these educational goals at its present rate". Clearly, additional intervention strategies will have to be encouraged and supported. Community education will have a significant role to play in helping to increase students'skills over the next few years. Throughout the nation, after-school tutorial programs, community and parental involvement programs, and mentoring programs have been effective in improving the educational achievement of our youth. The Nation must begin to make better use of community organizations to insure that future workforce needs are met and that it is prepared for global economic competition.

While the nation overall is "flunking", the mathematics and science scores of African American students are most alarming. These students represent a wealth of untappedtalent. The National Urban League is committed to making the academic needs of African American students a priority. Through the development, selection and dissemination of exemplary mathematics and science programs, the NUL will continue to contribute to the development of the nation's citizens.

The American Honda Foundation has provided support to the Education and Career Development Department of the National Urban League from 1990 to 1992, in an effort to encourage the design and implementation of programs that would

increase African American student interest in mathematics and science. As a result of the project, a survey was undertaken of mathematics and science programs conducted by Urban League affiliates. In addition, with the guidance and input of the American Association for the Advancement of Science and the Association of Science Technology Centers, an implementation manual was developed that describes four model mathematics and science programs: (1) Academic Assistance; (2) Community-Based Organizations/School District Collaborations; (3) Parental Involvement and Parent Education; and (4) Mathematics and Science Mentors.

The American Honda Math/Science Model Programs Manual is a resource and planning guide forUrban League affiliates who wish to confront the nation's educational crisis head-on by implementing math and science programs in their communities.

Michael B. Webb, Ed.D., Director
Education and Career Employment

ACKNOWLEDGEMENTS

The staff of the four Urban League Affiliates with exemplary programs contributed enormously to the National Urban League Mathematics/Science project sponsored by the American Honda Foundation: Frank Campbell, former CEO and Sharon Desmoulin-Kherat, Director of Education, Tri-County Urban League **TSTM** program, Peoria, Illinois; Theodia Gillespie, Director of Education, Quad County Urban League **TSTM** program, Aurora, Illinois; Gwendolyn Laroche, Education Director and Dondeinata Fleary, Project Director, **Chicago Urban League Black Churches Project,** Chicago, Illinois; Irma Boyett, Director of Education, Indianapolis Urban League Family Math project, Indianapolis, Indiana.

The efforts of Gwendolyn Rippey, Ph.D. are especially noted. *The American Honda Math /Science Model Programs Manual* has become a reality because of her work in managing the project and in organizing and preparing the manual for publication. Other NUL staff whose efforts are appreciated include Naomi Nichols for her secretarial support, and Adrian Lewis and Sydney Lancaster, for their review of the preliminary documents. Finally, the vision and support of Stephanie Robinson, Ph.D., former NUL Director of Education and Career Development, has been the motivating force behind bringing the Manual to all Urban League affiliates and communities.

The American Honda Math/ Science Model Programs Manual, developed as a project of the Urban League National Education Initiative, was funded by a grant from the American Honda Foundation.

The material in the manual does not necessarily reflect the views of the National Urban League or the American Honda Foundation.

INTRODUCTION

A National Crisis

There is a well documented crisis in education for African American children. The national high school dropout rate for African Americans is nearly twice that of whites. African American students are over-represented in special education classes and under-represented in gifted and talented classes. School suspension rates for African American students are three times that of whites and truancy rates in many inner city schools range from 40 to 70 percent.

Only 12 percent of African American students complete four years of post-secondary education; the completion rate among whites is 23 percent. The participation of African Americans in higher education is expected to decline significantly throughout this decade.

The National Education Initiative

The National Urban League (NUL) and its 113 affiliates have responded to this educational crisis by establishing strategies and programs to improve the academic achievement of African American public school students. The Urban League's National Education Initiative is a ten-year effort to improve the academic achievement of African American students through service delivery and advocacy. In June of 1989, an assessment of the Education Initiative indicated that mathematics and science had emerged as priority areas for the Initiative programs. In 1990, the American Honda Foundation awarded NUL a grant to underwrite the American Honda Foundation/National Urban League Mathematics and Sciences Partnership. The general goal of the Partnership is to increase African American student awareness of mathematics and science as academic subject areas and, ultimately, to increase participation in math-and science-oriented careers.

Math/Science Model Programs

This Math/Science Model Programs Manual has been developed to assist affiliates in mobilizing existing community resources: parents, schools, businesses, civic and social groups, to achieve the goals of the National Education Initiative. Four specific models are included in this Manual:

Model One:	Model one demonstrates how to implement an academic assistance program (e.g., after-school tutorials);
Model Two:	Model two focuses on collaborative efforts by community-based organizations and a school district;
Model Three:	Model three highlights parental involvement and parent education; and,
Model Four:	Model four illustrates how math/science mentors from the business and academic community can be utilized.

These four models, all developed by Urban League affiliates, share common program components but specific strategies, tactics and recommendations will be highlighted in each model to enable affiliates to select the model that best responds to local priorities and resources. To facilitate comparisons, the information for each model is divided into five areas:

- **Program Description** states the goals and objectives of the model and why the model program was developed.
- **Curriculum Development and Training** describes program content and activities used to achieve goals and objectives.
- **Program Evaluation and Impact** describes student and community outcomes and the methods used to evaluate the model.

• **Program Effectiveness** describes the factors that contributed to the success of the model program and any unique circumstances that influenced Program effectiveness.
• **Program Support** describes funding sources and resources for financial and community support for the Model Program.

Putting the Models to Work

The goal of the Math/Science Model Programs Manual is to provide Urban League Affiliates and others interested in specific math-and-science-oriented programming with basic information on successful approaches undertaken by Urban League affiliates. The manual will provide the following information on specific math/science model programs: how and why it worked, how and why it was developed and the program's impact. Decisions regarding implementation of the model programs will be driven by each affiliates available resources, local needs and priorities. It is hoped that the Math/Science Model Programs Manual will enable Urban League Affiliates to construct their own model programs to improve the academic achievement of our primary asset - our children.

CHICAGO URBAN LEAGUE
BLACK CHURCHES PROJECT
PROGRAM MODEL 1
Academic Assistance

CHICAGO URBAN LEAGUE BLACK CHURCHES PROJECT

In 1989, the Chicago Urban League's Education Department, under the direction of Dr. Gwendolyn Laroche, and with the assistance of the American Association for the Advancement of Science (AAAS), a professional group based in Washington D.C., initiated a program planning process to increase exposure of Chicago's African American school-age children to math and science. Recognizing that the Church has always been a valuable resource within the African American community, the Chicago Urban League intended to tap this resource to deliver a series of after-school tutorials to public school students.

Later that year, following the planning process, the project was initially funded with a $40,000 grant from the Chicago Community Trust. The Project received $8,000 in 1989, $56,000 in 1990 and $58,000 in 1991 from the National Science Foundation (NSF) through Access 2000, a NSF funding consortium. Currently, NSF contributes $58,000 in funding.

PROJECT GOALS

The Chicago Urban League Black Churches Project offers supplemental math and science enrichment to children in the inner city. The primary goal of the Project is to provide African American children with quality instruction in math and science as well as opportunities to gain technical literacy in a tutorial setting.

Traditionally African Americans have lacked exposure or encouragement to pursue study in challenging math-and science-related disciplines. As a result of severe budget constraints most elementary schools in Chicago have been forced to cut back science curriculums. This lack of early exposure further decreases the probability that African American children will become technically competent or consider technically oriented career options.

An Early Intervention Project

According to the AAAS, only two percent of all employed scientists and mathematicians are African American.

Projections for the 21st century indicate that the workforce will increasingly require technological skills. Projections also indicate that 85% of those entering the workforce in the 21st century will be African

DETERMINING THE COMMUNITY NEED

The first step in developing an after-school tutorial Project is to determine the level of need within the community. A critical step in the development of the Chicago Urban League Black Churches Project was to conduct a survey of black churches to determine their level of involvement in education youth within their congregations. The following questions should be considered:

1. What academic enrichment programs are currently, or have previously been available to the local community?
2. Who administers and funds these programs?
3. What delivery system has been used (schools, churches, etc.)?
4. How successful are they?
5. Why are they successful (unsuccessful)?
6. How has/will, the community support a math and/or science enrichment program?
7. How has, or will, the educational community support a math and/or science enrichment program?
8. Where are the potential program sites and are they able to service the constituency?
9. How many potential participants live in the community and how can they be recruited?
10. What level of support is the Urban League affiliate prepared to offer for such a program (financial, administrative, consultative)?

Gathering information through the Chicago Board of Education the Chicago Urban League considered the issues affecting the constituency and determined that there was a need that was not being met through traditional educational methods or current tutorial efforts. There were children that The Black Churches Project could reach who would otherwise not have access to after-school tutorial and enrichment programs. The Black churches were willing and able to become involved in the Project with the support of the Chicago Urban League. The next step was to determine just how to deliver this Program to the community.

Americans, Latinos, Asians and women. The Black Churches Project was developed as an early intervention strategy to impact African American elementary school students. The Project is designed to increase exposure to math and science concepts and activities, building a foundation for continued study in these areas. By providing early exposure at the elementary school level, the project bridges a critical gap created by deficient public school curriculum. Another goal of The Black Churches Project is to expand the pool of African Americans choosing math, science and related careers.

How The Black Churches Project Works

The initial analysis done by the Chicago Urban League suggested that due to the number and the geographic dispersion of the potential participants, no single organization could provide the necessary time, money and materials. That realization led to the development of several key relationships within the community. The Chicago Urban League Black Churches Project serves as the facilitator linking the black churches in Chicago, the Chicago Public Schools, the family, Access 2000, the technical sciences community, museums and science centers. Each organization plays an integral role in the success of the program:

The Black Churches provide the program site, recruit the participants and in some cases, provide the tutorial staff.

The Chicago Public Schools provide the program with a potential pool of participants, assist in recruitmen;, provide test scores, report cards and other evaluative information.

The families participating in The Black Churches Project encourage their children to participate and support the program activities.

The professional community provides funding to employ teachers, tutors, or purchase supplies. It donates equipment and services, provides transportation or hosts field experiences for program participants.

The Urban League affiliate is the facilitator, provides administrative support, and brings the community together to function as a vital coordinated effort.

Access 2000 is the National Science Foundation funding consortium that provided part of the initial funding for The Black Churches Project.

Recruitment

The initial analysis for The Black Churches Project identified churches that would be potential participants for the program. Churches were recruited by advertising in newspapers serving the African American community. Technical assistance and a $550 stipend to implement the program were offered to churches as an incentive to participate .

Through press releases to the media, the Chicago Urban League was also successful in getting television and newspaper coverage for the project. The publicity generated unsolicited inquiries from additional potential participants. The Chicago media campaign was successful in producing more than 300 prospects for the program. Currently, there are over two hundred churches in the Chicago area participating in The Black Churches Project network. Because of successful recruitment efforts, the Chicago Urban League no longer has the capacity to accommodate additional sites nor does it solicit additional participation. However, the Chicago Urban League continues to respond to all inquires. The following describes the steps taken to implement the program at a specific church site.

1. In response to inquiries from potential participants, The Black Churches Project sends a program prospectus outlining the program objectives, the target population, and a description of how participating churches establish and sustain the tutorial program. Potential participants are sent material outlining the role of the Chicago Urban League and that of each participating church. (A copy of the prospectus used by the Chicago Urban League is provided in the resource section for Model 1.)

   In order to participate in The Black Churches Project, a church must employ four hours per week in a combination of math and science activities, provide a safe, clean atmosphere for learning and allocate resources and expenditures in an accurate and equitable manner. For its part, the Chicago Urban League provides a full-time Project Director, materials and technical assistance to participating churches.

2. If the Church meets the requirements outlined in the prospectus, the Project Director visits the church to discuss the Project, meet the potential volunteer pool, determine the grade levels that will be tutored, and appropriate subject matter, days and hours for the program and the start date.

3. Next, the Pastor of the church meets with the Principal of the nearest public school to discuss planned tutorial activities. To ensure the success of the Program the Principal must agree to work with the church. The school supports and endorses the program by distributing student recruitment material, sharing the current curriculum with the tutorial staff and making teaching staff available to assist church staff with the development of the program. The schools also offer assistance by providing test scores, identifying prospects, and sending information to parents concerning the program. The schools may also recruit teachers for The Black Churches Project.

4. The church appoints a Site Coordinator who acts, on an ongoing basis, as the church liaison with school representatives (guidance counselors, classroom teachers, etc.). The site coordinator works with the schools to identify program participants, keep the school in-formed of student progress, and ensure that teachers and administration are aware of the program curriculum and content.

5. A second meeting is held with teachers to distribute applications for the program.

6. Applications from students are reviewed by the Project Director and Site Coordinator and tutorial groups are organized. A further description of the tutorial group is provided later in this section. The ideal tutorial group, as determined by the Chicago Urban League, generally includes approximately five children functioning above grade level and requiring acceleration, and ten children at or below grade level and in need of remediation. The combination of students at different levels of competency provides an atmosphere of peer support and influence that stimulates learning. All participants volunteer for the program with the nomination of an appropriate school or church educator and the support of an adult sponsor, a parent or a Big Brother or Big Sister.

Program Participants and Participation

The Black Churches Project consists of students, parents, educators, administrative staff and community and national organizations. Each group is critical to the implementation and success of the program. The core of the program is the tutorial group. A tutorial group is defined as fifteen or fewer students, two tutors and one lead teacher.

The typical **student** participant in The Black Churches Project is African American, in the fifth grade and comes from a single parent household and a background of poverty.

Parents may be **tutors** and are eligible to tutor for wages. They must participate in tutorial training provided by the Chicago Urban League. Accelerated high school or college students who undergo training, may also tutor. They are compensated with wages and scholarships. The Chicago Urban League has developed a separate program called Science, Mathematics, Advocacy and Recruitment for Teaching (SMART) that encourages high school students to pursue math and science teaching careers. The program, funded by the Chicago Community Trust, identifies academically talented students who are interested in teaching careers. Many of the tutors for The Black Churches Project are from the SMART program.

All **lead teachers** in The Black Churches Project are college educated and trained to teach math and science. They may be recruited from the local school or church membership or by the Chicago Urban League.

Parental Involvement

Parental consent is required for children to participate in The Black Churches Project. To encourage family involvement, each site has an "opening" during the program's first week. Participants' families are invited to the church to meet the minister, the tutorial staff and the project director. They share a dinner and participate in activities. Though parental involvement is encouraged, it is not mandatory. The Project seeks to provide the African American child with crucial support from parents by exposing parents to the program and to program staff and by ensuring that parents know that their participation is welcomed and considered vital.

Parents are encouraged to attend parent/teacher clinics given by the churches. These clinics present to parents the math and science material their children are using in the program. In many cases, clinics allay some of the fears that uneducated and undereducated parents may have concerning their ability to help their children with "hard" subjects. The support that The Black Churches Project gives parents enables them to strengthen their children's learning at home.

Parents are also asked to attend field trips with their children and volunteer time and their own expertise to the program; the expertise need not be math or science related.

Community Participation

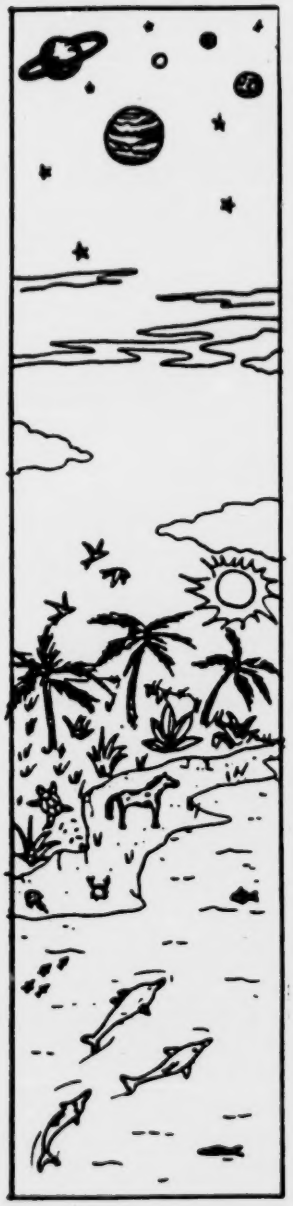
The Black Churches Project works with community and national organizations to provide programming, funding, personnel and training. Some community organizations provide African American students and/or retired scientists to serve as trainers and mentors. Other organizations

donate computers, microscopes and lab equipment. Still others offer enrichment experiences such as presentations and field trip experiences.

Field visits are a key component of The Black Churches Project. Participating students visit the Field Museum of Natural History, the Lincoln Park Conservatory, the Museum of Science and Industry, the Aquarium, the Lincoln Park Zoo and a host of other local science and math related organizations and destinations. Hands On Science: A Directory of Science Places For Black Churches was developed with funding from the AAAS and Ford Foundation and is provided to churches to aid in planning field trip experiences. A copy of the directory is provided in the Resource Section for this model.

The Role of the Chicago Urban League

The Chicago Urban League provides a full-time project director, distributes resource material and offers technical assistance to churches in the program. The Chicago Urban League is the fiscal manager of The Black Churches Project. No funds are given directly to the individual churches. Materials and supplies are ordered by the Chicago Urban League. The Chicago Urban League also hosts staff training and workshops and pays for food and transportation for special events.



CURRICULUM DEVELOPMENT/TRAINING

The curriculum for The Black Churches Project is based on several factors including the age of the student participants, their level of exposure to math and science, and the quality of math and science resources within the community. The initial survey conducted by an Urban League affiliate should identify gaps in the local public school curriculum that may result in inadequate preparation for challenging math and science study. This information should then be used to plan and develop the project's curriculum.

The Chicago Urban League Black Churches Project, for example, identified the basic components of the curriculum based on the Chicago Public School math and science curriculum; and the math and science resources available within the community, including the pool of instructors and tutors, field trip opportunities, and the educational tools and equipment within the churches.

The Black Churches Project Components

Through a local consortium of institutions participating in the Access 2000 Chicago Partnership, the Chicago Urban League Black Churches Project is able to offer participating churches several math and science related program components. Access 2000, funded by a grant from the National Science Foundation and administered by Loyola University, utilizes technical and material assistance from participating institutions which include: Argonne National Laboratory, Aspira of Illinois, Chicago Public Schools, Chicago State University, Chicago Urban League, Illinois Institute of Technology, Institute for Illinois, Loyola University, Northwestern University, and University of Illinois at Chicago. The following provides a list of optional programs available to The Black Churches Project through Access 2000.

Math Tutorial offers students in grades three through eight an exposure to mathematics concepts and experiences, then utilizes

the concepts to promote growth in their understanding of mathematics. This program goes beyond remediation and emphasizes academic development and enrichment.

Family Math/Adult Mathematics is a mathematic workshop for adults interested in upgrading their math skills in order to be able to tutor children.

Teachers Group is a program for teachers/tutors who have math skills but lack familiarity with the use of manipulative materials.

Science Tutorial provides training to acquaint or reacquaint teachers/tutors with hands-on science methodologies. Training is provided in eight areas: 1) Ecology; 2) Botany; 3) Oceanography; 4) Sources of Energy; 5) Solar System; 6) The Human Body; 7) Zoology; and 8) Weather and Climate. *Science Labs* is a traveling kit of materials from the American Association for the Advancement of Science and the University of Illinois Chicago's Teaching Integrated Math and Science (TIMS) program. Teachers in this component are paired with Master-Scientists from Argonne National Laboratory as well as scientists from industry to be able to offer monthly science laboratory experiences.

Science Videos from the New Explorers Video series are provided by the Argonne National Laboratory. These videos explore a variety of subjects including science in sports, medicine, research and exploration of space. Many of the videos feature African Americans such as Michael Jordan, Dr. Ben Carson and Astronaut Mae Jemison. The videos, each with an accompanying book of reproducible material, are used to supplement the tutorial programs.

Computer On-Site Tutorials designed to familiarize students with computer software and hardware are limited to facilities with computer equipment available and supported with cash grants to pay instructors.

Field Experiences are monthly field trips to science-related destinations such as museums, aquariums, planetariums, hospitals and zoos. These excursions supplement tutorials and are designed to include the entire family. The Chicago Urban League has developed a listing of field trip destinations entitled *Hands on Science: A Directory of Science Places for Black Churches*. The directory was developed to encourage parents, community groups and churches to use local science resources to supplement classroom and tutorial science learning. A copy of the directory is included in the Resource Section for Model 1.

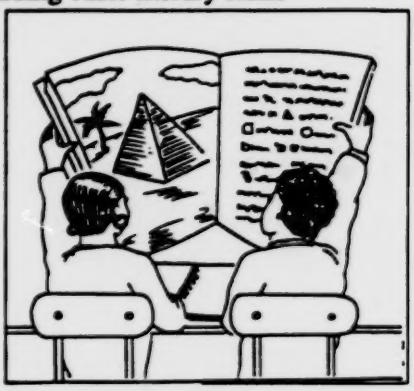
African Americans in Mathematics & Science (AAIMS) provides opportunities for participants in The Black Churches Project to interface with recent college graduates in the fields of math and science. These individuals share cultural, social and academic experiences with the program participants.

There are four supplemental programs within The Black Churches Project. These programs are not offered on a regular basis because of funding or personnel constraints. The supplemental components are:

Test Preparation courses for college entrance exams provided by the Chicago Urban League's Education department. These courses are offered free of charge to the congregations of The Black Churches Project.

Scholarships are made available, as funding permits, to students who have progressed through the program and are interested in pursuing careers in math and science.

Language Arts tutorials are given which concentrate on building basic literary skills requisite for development of other skills and necessary to demonstrate general language ability.



Afro-cultural enrichment is designed to enhance knowledge of the unique culture and heritage of African Americans. Participants are exposed to past and present African American contributions in the sciences to dispel the prevailing notion that people of color have not been influential in scientific fields. The program enhances self esteem for the participants as they take pride in the contributions of their people and are encouraged to continue the African American tradition in science.

In addition to academic mentoring, the program provides food for the participants. This is important because most of the tutoring takes place after the school day and most participants arrive several hours after they've eaten lunch. By providing a snack before the program begins, participants can concentrate on the lesson and not on hunger. Also, program staff have found that the presence of food contributes to a nurturing environment.

Project Resource Material

The Black Churches Project uses educational materials that are widely available. The program also develops locally specific information for use by participants. For example, as was previously referred to, the Chicago Urban League has developed *Hands On Science*, a directory of places for participants to experience science in action.

This handbook can be developed and adapted by an affiliate for its community. Resource materials are available based on the age, grade level and level of student proficiency and the level of math and science expertise available within each tutorial group. The "Resource Section for Model 1" gives complete information on where and how to obtain math-and science-related materials. The following provides a brief description of the primary resources used by the Chicago Urban League Black Churches Project that are readily available to all affiliates.

Creative Teaching Press Investigating Science Series: a comprehensive series of reproducible student worksheets designed to supplement classroom science units. Titles are offered on a variety of subjects for grades K through 8. The Investigating Science series contains hands on activities and interdisciplinary activities related to reading, math, language arts, social studies or art. The worksheets may also include a "Science At Home" section. Additional teaching ideas suggested field trips and group study recommendations are also included.

Family Math, published by the University of California, Berkeley, is a book containing exercises that help children and parents develop problem-solving skills and build an understanding of mathematics with "hands-on" materials.

The American Association for the Advancement of Sciences (AAAS) provides a bibliography for developing appropriate science curriculums. The AAAS also distributes a series of video tapes on various scientific topics such as African Americans in Science and Math, and Science Programs for the early grades.

The New Explorers Video series produced by the Argonne National Laboratory explores a variety of science-related subjects.

Organizing The Information

Science-related information and materials are selected based on the local school curriculum. Each lead teacher formulates his or her own lesson plans taking into account the grade level and the degree of science competence of participating students. A sample lesson plan for a typical tutorial for grades 4 - 6, using the CTP Investigating Science series, is provided in the Resource Section for this model.

PROJECT EVALUATION/IMPACT

The Chicago Urban League evaluates The Black Churches Project by gathering statistical information on student grades, attendance and test scores from twenty-eight of the most recent implementation sites. School personnel provide grades and Iowa Test of Basic Skills scores of participating students. Grades and scores are monitored by the church site coordinator. Additionally, records are kept on each child's program performance and parental involvement. The information collected is used to evaluate the program's impact, refine the program curriculum and ensure that program content is relevant to student grade and developmental levels.

A Community Responds

The community response to The Black Churches Project has been overwhelming. An indication of positive community response is the fact that the program can no longer accommodate additional participants. Correspondingly, the Chicago Urban League does not seek additional publicity. There are over two hundred churches in the Chicago area in The Black Churches Project network servicing twelve hundred participants during the academic school year and six hundred participants in summer programs.

PROGRAM EFFECTIVENESS

The effectiveness of The Black Churches Project is measured in several ways. One of the primary indicators of effectiveness is the level of participation. If the effectiveness of The Black Churches Project were judged solely by the level of participation, the program would be deemed an unprecedented success. In the last four years, the program has grown to more than two hundred sites and services as many as twelve hundred children in the Chicago metropolitan area. The program has expanded to include supplemental programs such as computer skills and language arts. The project director cautions other affiliates interested in the program to stay focused on the project's primary goals to ensure that a weekly minimum of four hours of math/science programming is offered students. The limitation of one full-time project director renders additional growth at this time impractical.

Anecdotal evidence suggests that the Project has had a positive effect on the participants' level of confidence. Numerous newspaper articles, including a major story that appeared in *The New York Times* in August 1991, cite program successes. A copy of the article from *The New York Times* appears in the resource section for this model.

The Black Churches Project was developed based on the belief that community based support

systems, like the church, can bring family and community together and help counteract negative influences. Churches and other community institutions can provide encouragement to young people to pursue careers in science and technology. The church environment also provides an opportunity to emphasize ethics and spirituality without the restrictions imposed on public schools by the separation of church and state. Although the curriculum is not religious in content, the fact that the program is conducted in the church by members of the church has a positive effect on how participants and their parents view the program.

PROJECT SUPPORT

The Chicago Urban League Black Churches Project is supported by the contributions of various funding sources, local organizations and Chicago Urban League staff.

Funding

The National Science Foundation through Access 2000 provides over half of the budget for the Chicago Urban League Black Churches Project. Local funding sources include businesses, corporations, private foundations and community groups. They are solicited to finance necessary materials or to underwrite one or more church sites.

In-kind services are also sought to support the program. Local attractions such as museums and planetariums provide free admission to program participants for field trips. There are many examples of community support: a local copy company duplicates materials for the program free of charge; a computer retailer donates software and hardware. The churches are also encouraged to seek additional funding on their own.

To obtain supplemental funding, the Chicago Urban League suggests contacting the local United Way in order to be added to the "Gifts In Kind" mailing list. When a donation is available in the affiliate's area, the local United Way is contacted by Gifts In Kind, a national clearinghouse in Alexandria, Virginia. The local United Way then notifies the affiliate if there is a match between the purpose of the donation and affiliate program.

As stated earlier, the Chicago Urban League does not provide funding for the Black Churches Project but acts as the fiscal manager for the program. The Chicago Urban League houses and pays the full-time project director and provides a central distribution point for information and material.The Chicago Urban League orders supplies and materials for the program, hosts staff training and workshops, pays for food and transportation for special events and administers other program needs.

Staffing

The Black Churches Project has only one full-time staff member, the project director. The balance of the staff consists of paid part-time teachers and tutors and volunteer church staff (sometimes including the minister), who work with schools to facilitate the program. In some instances, parents accompany participants on field trips. Though parental involvement is always sought, it is not always available and the program's success does not rely on parental commitment.

IMPLEMENTING AN ACADEMIC ASSISTANCE PROGRAM

The Chicago Urban League Black Churches Project uses the resources available within the Chicago community to provide public school students with academic assistance in the areas of math and science. The academic assistance is age appropriate and grade specific and seeks to supplement and enrich, not replace, the academic foundation provided by the local school system. The success of the program depends on the close cooperation of several community organizations and the generous provision of time, money and materials by the organizations, students and their parents. Because of these factors, the Chicago Urban League Black Churches Project has been successful.

RESOURCE MATERIALS
for
MODEL 1
CHICAGO Urban League
Black Churches Project

RESOURCE SECTION FOR **PROJECT MODEL 1**

Creative Teaching Press Investigating Science Series
Available through Teacher's Aids and Educational Supply Stores located in major cities nationally. Your local public school administrator can assist in locating these resource stores.

FAMILY MATH is available by contacting:

Lawrence Hall of Science
University of California
Berkeley, California 94720
Attention: Family Math
(510) 642-5133

Math Power
American Association for the Advancement of
Science, Education and Human Resources
1333 H Street NW
Washington D.C. 20005
(202) 326-6670

New Explorers Videos
Information about currently available and upcoming titles and how to order can be obtained by contacting:

Ms. LaVonia Ousley
Program Coordinator
Argonne National Laboratory
DEP-223
9700 South Cass Avenue
Argonne, IL 60439-4849
Telephone Number (708) 252-7784
FAX (708) 252-3193

FUNDRAISING:

The Chicago Urban League suggests the following books as fund raising resources:

101 Ways to Raise Resource
101 Ideas for Volunteer Programs

By McCurley and Vineyard, published by Kroch & Brentanos publishers.

INCLUDED IN MANUAL:

Hands On Science: A Directory of Science Places For Black Churches

Black Churches Project, Program Description Provided to churches or organizations in response to inquiries about program.

It's In The Cards! An instruction manual of math card games.

RESOURCE MATERIALS
for
MODEL 1

CHICAGO Urban League
Black Churches Project

1. **Sample Lesson Plan**

2. **Field Trip Experience Form**

3. **Hands On Science: A Directory of Science Places For Black Churches**

4. **Black Churches Project, Program Description Provided to churches in response to inquiries about program.**

SAMPLE LESSON PLAN FOR BLACK CHURCHES PROGRAM

TOPIC: **THE SOLAR SYSTEM**

MATERIALS: **CTP Investigating Science Series: Beyond The Solar System**
Reproduce material from pages 1 - 5 for distribution. Black Construction Paper, one to two sheets per student. Scissors, sharpened pencils and safety or straight pins.
"Milky Way" candy bars (optional).

SUBJECT: **The Galaxy:**
Define the galaxy and its relationship to the universe. Who studies the galaxy (astronomers)? Name the galaxies and their distances from the earth.

The Stars:
Define the stars. Composition and types of stars, novas and quasars.

Constellations:
Define and illustrate Ursa Major, Cassiopeia (Ethiopian Queen), Ursa Minor, Big Dipper, Little Dipper and Gemini.

ACTIVITY: Cut out constellations charts supplied in CTP material, tape them to a piece of 9" x 12" black construction paper. Poke the stars with a pin or sharp pencil point and hold up to a light to see the constellations. Have students use the chart to find some of the constellations at night.

HOMEWORK: Name things in everyday life that use the names of galaxies, stars or constellations. Suggestions: "Milky Way" candy bar, "Quasar" brand televisions, "NOVA" the PBS science series, NASA's Gemini program.

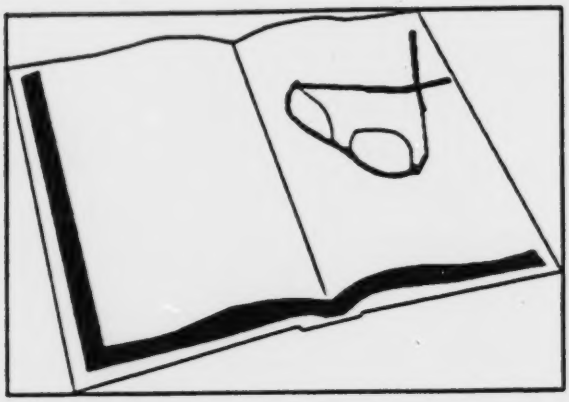
FUN IDEA: Pass out Milky Way candy bars for everyone!

FIELD TRIP EXPERIENCE FORM

WEEK	CURRICULUM	FIELD EXPERIENCE
July 6-10		Field Museum of Natural History
July 13-17	Ecology/Botany	Morton Arboretum Lincoln Park Conservatory
July 20-24	Oceanography: Into the Depths	U505 Exhibit-Museum of Science and Industry or Marine Museum or Shedd Aquarium
July 27-31	Sources of Energy	Commonwealth Edison Exhibit - Museum of Science Industry
August 3-7	Weather and Climate	Adler Planetarium or Space Center
August 10-14	Biology	Brookfield Zoo or Lincoln Park Zoo Miracles Babies exhibit-Children's Memorial Hospital or Museum of Surgical Sciences

(Other field experience options: Culture Field Trip in "City Science" curriculum- Frank Lloyd Wright Tour. For the last week of the session, the option of a camping trip will also be made available.

HANDS ~ ON ~ SCIENCE



A

DIRECTORY

OF

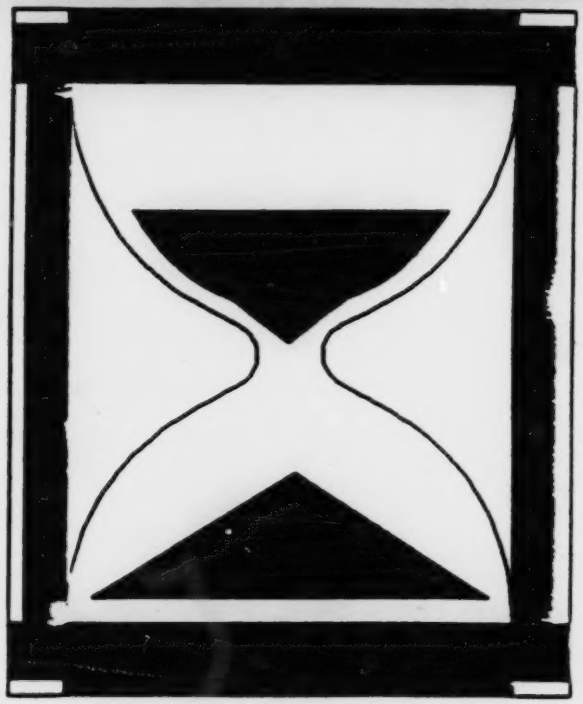
SCIENCE PLACES

FOR

B L A C K C H U R C H E S

"And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth. Gen 1:28.

INTRODUCTION TO THE BLACK CHURCHES PROJECT



The quality of life in American is in no small part created and maintained because of our nation's strength in science and technology; a strength that is being threatened by a general decline in the quality of our science and mathematic education.

This decline has reached crisis proportions for Black and other minority students, as few Black youth are market. Presently only 2% of all employed scientists and mathematicians are Black. However, projections for the 21st century indicate that 80% of the entering workforce will be comprised of minorities and women.

Children spend roughly half of their productive hours in school. Yet many, particularly minority children, have their natural curiosity about math and science stifled because of negative influences both inside and outside the classroom.

The Chicago Urban League working in conjunction with the American Association for the Advancement of Science and others, is participating in a national initiative to bring good language, math and science education to children living in large urban cities.

We believe that there is an urgent need to make this population more culturally and technically literate and that the Black church has established itself to be a viable means of accessing minorities and gaining credibility in the community. The Black Churches Project was designed to promote effective, efficient tutorial programs in Churches that serve the Black community.

Presently, the Black Churches Project is operating in 19 major metropolitan cities across the United States. These networks have been commissioned to reach 1,500 inner-city congregations this year and over 1000,000 children.

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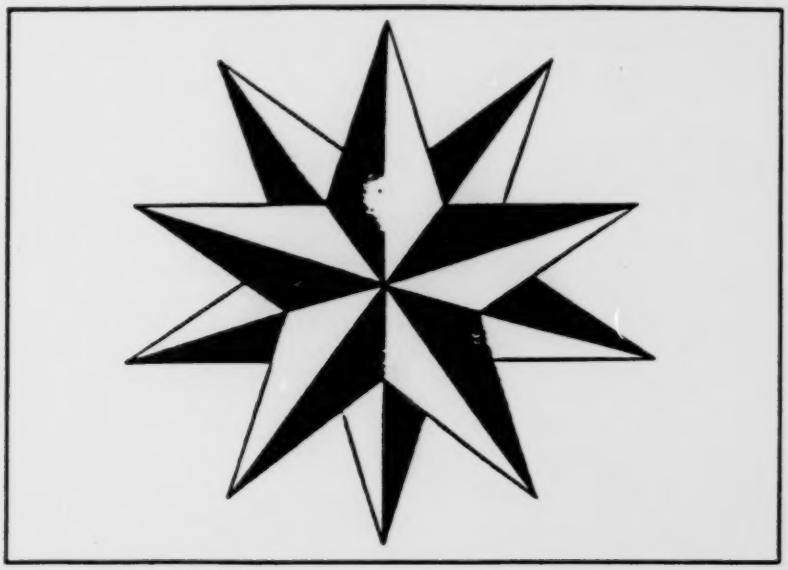

This directory was developed to encourage parents, community groups, and churches that run out-of-school programs to make use of their local science resources. Science places offer a number of hands-on, participatoryactivities which can be used to supplement the science learning that takes place in schools. Such places provide students and their families with opportunities to be better understand the every-day applications of science and technology. This booklet has a variety of suggestions to help parents and organizations plan science related activates.

We gratefully acknowledge
the Vision, information and money
provided by
American Association for the Advance of Science
and
The Ford Foundation

This Directory may be reproduced!!

For Additional resource information or to find out about developing a tutorial program in your church call Dondieneita Fleary, Chicago Urban League Black Churches Project. Phone 285-5800, extension 358

TIPS ON PLANNING A PUBLIC SCIENCE DAY

Identify a science-related place that your group can visit. Over 50 science-related place in the Chicago area are listed in this booklet.

Decide on a date and time for Public Science Day. More people will participate if the event is held on a holiday or weekend.

Contact the community-outreach coordinator, education director, or director of the science-related place to find out about:

- special tours or workshops,
- group admission fees and
- lunch facilities.

Develop a budget for Public Science Day. Possible budget items include:

- admission fees,
- lunch fees and
- transportation.

In some cases, admissions may be free. To keep cost to a minimum, participants may be able bring their own lunch. Transportation options include car pooling or bus rentals. If a bus is used, accident insurance should be included.

Organize a planning committee for Public Science Day. Responsibilities of committee members may include:

- deciding on type of transportation,
- fundraising
- developing announcements
- identifying and recruiting participants and
- chaperoning or serving as a resource person on the day of the event.

Public Science Day participants can be identified though contacts with schools, churches, community groups, housing projects, student and professional associations, and sororities and fraternities.

Potential sponsors for Public Science Day include operations, city government agencies, foundations, school district offices, professional associations, sororities and fraternities, churches, and individual donors.

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TIPS ON HOW PARENT CAN GET INVOLVED IN AFTER-SCHOOL MATHEMATICS AND SCIENCE EDUCATION WITH THEIR CHILDREN

At least once a month, try to take a family field trip to an aquarium, botanical garden, science museum, zoo or some other science. Many science places are listed in this guide.

For birthdays, holidays and other special occasions, give your child a book about science, mathematics and computers; subscriptions to science magazines; mathematical games, puzzles and toys; calculators and scientific games; kits and posters. You can find such items in toy shops, bookstores department stores museum gift shops.

At least once a week, try to watch a science-related television show with your child. Science programs that are currently shown on regular television stations include: Square One, The Knowzone, 3-2-1- Contact, Newton's Apple, NOVA, and National Geographic.

Encourage your child to participate in after-school programs that offer "hands-on-" opportunities or laboratory experiences in mathematics and science. Such programs are usually offered by colleges and universities, schools, businesses, community-based organizations science-technology centers and other institutions. After-school programs include summer and Saturday academy, career-days, competitions, workshops and job internships.

Encourage your child to participate in after-school computer activities. Find out if your local library has computers that you and your child can use. Some organizations and computer stores offer free or inexpensive computer classes for both children and adults.

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ADLER PLANETARIUM

1300 S. Lake Shore drive
Hours: 9:30-4:30
Admission: Free
Phone: 322-0300 for schools/
groups call 322-0302
The Adler planetarium has a variety of special events including Saturday pre-school shows, and a night sky shows.

CHICAGO ACADEMY OF SCIENCES
(Museums of ecology and natural history)
Special needs access

2001 N. Clark Street
Hours: 10:00-5:00
Admission: Free on Mondays/
Generally $1.00 50 cents children
Phone: 549-0606 for special arrangements call 549-0775 ext.34
Exhibits: Creepy-Crawlers, tracks in the sky, (bird migration patterns), exhibit of the natural history of the Chicago area from 400,000,000 years ago until the present.

CHICAGO BOTANIC GARDEN
Special needs access

Glencoe Il. Lake Cook Rd.,
(1/2 mile East of the Edens)
Hours: 8:00 - Sunset
Admission: Free; Parking $2
Phone: 708-835-5440
Exhibit: The Botanic garden features twenty types of different gardens, and a sensory garden for the visually impaired. There are special programs available for groups of children.

CHICAGO FIELD MUSEUM OF NATURAL HISTORY
Special needs access

Roosevelt Rd. at Lake Shore Drive
Hours: 9:00-5:00 except for major holidays
Admission: $3.00 (adults) $2.00 (children 2-17, and senior Citizens); maximum admission fee of $10.00 per family.

THE INTERNATIONAL MUSEUM OF SURGICAL SCIENCE
Special needs access

1524 North Lake Shore Drive
Hours: Sunday-Monday 11:00 - 5:00, Tuesday - Saturday 10:00 - 4:00
Admission: $1.00 (adults) 50 cent (children)
Phone: 642-3555
Exhibits: This museum has a large number of surgical artifacts, paintings, and sculptures. A group size of 20 or less is preferred, and the museum does not receive patrons under 12 years-old.

MORTON ARBORETUM
Specials needs access

Route 53, Lisle
Hours: 9:00 - 5:00 (winter months) 9:00 - 7:00 (spring and summer).
Admission: Fees contingent on program required, call ahead for reservations.
Phone: 703-969-8783
Exhibits: The arboretum is a 1,500 acre outdoor museum of woody plants, all the plants that can survive in the mid-west are represented. There a guided tour, self-guided tours and other program of interest.

SHEDD AQUARIUM, JOHN G.
Special needs access

1200 South Lake Shore Drive
Hours: 10:00 - 5:00 (November-February) 9:00 - 5:00 other items
Admission:$3.00 - $2.00 per child
Phone: 939-2426, ext. 388 for education (TBA)
Exhibits: The Aquarium offers a feeding show at 11:00 and 2:00, free films on weekends. The whale exhibit will open in the fall of 1990.

LINCOLN PARK
Special needs access

2200 North Cannon Drive
Hours: 9:00 - 5:00
Admission: FREE
Phone: 294-4660
Mid-sized animal zoo, petting zoo, and barn.

BROOKFIELD ZOO
Special need access

8400 West 31st Street
Brookfield, Illinois
Hours: 10:00 - 5:00
Admission: Free - Tuesday
$2.75 (adults) $1.00 (students) $3.00 parking
Phone: 242-2630 - 485-2200

MUSEUM OF SCIENCE AND INDUSTRY & HENRY CROWN SPACE CENTER
Special need access

5700 South Lake Shore Drive
Hours: 9:30 - 4:00, daily
Admission: Free
Phone: 684-1414
Fabulous hands on museum, full of exhibits and complete with Omni-max theatre.

INDIAN BOUNDARY
Special need access

2555 West Estes
Hours: office hours 9:00 - 5:00
Admission: Free
Phone: 274-0644
Attractions: There is a small zoo and lots of open plan space.

CENTERS FOR THE HANDICAPPED
UNIVERSITY OF ILLINOIS MEDICAL CENTER
Special needs access

828 South Walcott
Hours: TBA
Admission: Free
Phone: 996-7780 - 3 weeks advance notice is required. Contact the Admissions Office for information.
Tours include the College of Dentistry, Nursing, Pharmacy, Anatomy and Pathology Museums, The Graduate School and the University of Illinois Sickle Cell Center. Tours are especially designed for high school, college and community groups.

THE HADLEY SCHOOL FOR THE BLIND
Special needs access

700 Elm Street
Winnetka, Illinois 60093
Hours: 8:00 - 4:00
Admission: Free - Call for reservations
Phone: 446-8111
Tour include an explanation and demonstration of braille, Helen Keller letters exhibit, and a display of some of the various aids and appliances for the visually impaired.

THE LAMBS, INCORPORATED

I-94 at Rt. 176
Libertyville, Illinois
Hours: Open daily year round. 9:30 - 5:00.
Admission: Free - Reservation should be made as far in advance as possible.
Phone: 362-4636
The Lambs is an innovative working farm for mentally retarded adults who require shelter care. Lunch is served 11:00 - 4:00, dinner, 4:00 - 9:00 every day with the exception of Sunday and Monday.

REHABILITATION INSTITUTE OF CHICAGO-NORTHWESTERN UNIVERSITY

355 East Superior Street
Hours: TBA
Admission: Free
Phone: 649-6184
Tours are arranged for groups only, no individuals, and advance notice is required because there is a limit on tours to be given in a week.
Tours are taken through Physical Therapy, Occupational Therapy, Therapeutic Recreation, Vocational Rehabilitation and one Nursing floor.

AMAX COAL COMPANY

Delta Mine
Marion, Illinois
Hours: Weather permitting tours are scheduled for the fourth Thursday of each month.
Admission: Free
Safety equipment must be worn by visitors, and children under 12 are not permitted on tours.
Phone: 217-544-2625
A limited number of public tour dates are offered at AMAX Coal Company's Delta Mine, a surface operation.

UTILITY COMPANIES
CLINTON NUCLEAR POWER PLANT

P.O. Box 637
Clinton, Illinois
Visitors Center is open and offers an exhibit room and a film shown. On site tours are available evenings and weekends. Advance reservations necessary.

UTILITY COMPANIES
CLINTON NUCLEAR POWER PLANT

P.O. Box 637
Clinton, Illinois
Admission: Free
Advance reservation necessary.
Visitors Center is open and offers an exhibit room and a film shown. On site tours are available evenings and weekends.

COMMONWEALTH EDISON

Dresen/Nuclear Power
Station Visitor Center
R.R. 1
Morris, Illinois
Hours: Monday - Friday 8:00 -4:30. Tours can be given Saturdays, Sunday and evening by special arrangement. Contact the Tour Director for reservations.
Admission: Free
Advance notice is required.
Phone: 815-942-2920, ext. 225
Display introduce the electric utility plant and 20 minutes movie takes the visitors on a visual tour. No tours of the actual plant.

JAMES W. JARDIN
WATER PURIFICATION PLANT

1000 East Ohio
Hours: Tours are offered (by appointment only) Tuesday and Thursday 9:00 - 10:00 - 11:00 1:00 and 3:00. Saturdays and Sundays tours may be taken at 1:00 - 2:00 - 3:00 and 4:00. Groups are asked to call to make an appointment between the hours of 8:30 - 3:00. Minimum one week notice.
Admission: Free
Phone: 744-3692
Visit the largest water filtration plant in the world and see the entire purification process.

FERMILAB NATIONAL
ACCELERATOR LABORATORY

Batavia Road
P.O. Box
Batavia, Illinois
Phone:708-840-3351
Fermilab is a national laboratory which operates the world highest energy particle accelerator for subnuclear participle research. The Fermilab National Accelerator Laboratory is involved in a large-scale applied superconductivity, neutron irradiation for cancer and large prairie restoration projects.

TECHNOLOGICAL INSTITUTE
NORTHWESTERN UNIVERSITY

505 North LaSalle Street
Hours: The Institute offers one hours tours every Saturday at 11:00., except on holiday.
Admission: Free
Phone: 491-7379
One of the most comprehensive facilities for education and research engineering and applied sciences.

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AERONAUTICS
BLOOMINGTON-NORMAL AIRPORT CONTROL TOWER

Rt. 9 East
Bloomington, Illinois
Hours: Schedule tour at least two days in advance between 10:00 - 6:00 daily (7 days a week) to see the operations of the control tower, its equipment and procedures involved in keeping planes flying safely. No children under 11, and those over 11 must be accompanied by an adult. Maximum group size is 8.
Admission: Free
Phone: 309-662-4432

CHANUTE AIR FORCE BASE
OFFICE OF PUBLICS AFFAIRS

Stop 7
Chanute AFB, Illinois
Hours: 9:00 - 10:00 each day
Admission: Free
Phone: 217-495
One Month advance written request. Tour group size: 25-50 people.
Handicapped access to display center.
Chanute is the third oldest Air Force base in the United States, and the oldest of the technical training centers under the Air Training Commands. General tour includes display center and riding tour (approximately 25 aircraft from World War II to the present on display).

PARKS COLLEGE ST. LOUIS UNIVERSITY

Falling Springs Road and Illinois 157
Cahokia, Illinois
Hours: TBA
Admission: None
Call 1-week in advance for reservations which are required.
Phone: 618-337-7500
Watch students and professors repair aircraft engines while touring the aircraft maintenance lab, the aerodynamic lab, the chemistry and physics lab. avionics lab and the wind tunnel.

AGRICULTURE
COMMODITY MARKET
BROAD OF TRADE CITY OF CHICAGO

141 West Jackson Boulevard
Hours: TBA
Admission: TBA
Groups of 15 or more must make a reservation in advance. Age is limited to 16 years or older for groups.
Phone: 435-3260 or 435-3590
The world's oldest and largest commodity futures trading market. The Visitors Center overlooks the Agricultural and Financial Trading floors.

MID-AMERICAN
COMMODITY EXCHANGE

444 West Jackson Boulevard
Hours: TBA
Admission: TBA
Contact at least 1-week in advance for reservations to take the 45 minute tour. Preferred age group: high school and up. Contact Public Relations supervisor.
Phone: 341-3000
See grain, livestock, metal, oil and seed commodities, financial instruments and sugar traded. Observation Galley available with no reservations.

ELEVATOR AND GRAIN HANDLING FACILITIES - GRAIN AND FEED ASSOCIATION OF ILLINOIS

2001-B West Monroe Street
Springfield, Illinois
Hours: TBA
Admission: TBA
Two to three days notice required for reservations. No age restriction. Maximum group size: 20.
Phone: 217-787-2417
Contact the association and they will make necessary arrangements with several grain elevators in the area for tour of their facilities.

TABOR GRAIN ELEVATOR

Rt. 89
Spring Valley, Illinois
Hours: Monday - Friday, 7:00 to 5:00. One month advance notice is required.
Maximum group size: 10. Age restriction: no one under sever years of age.
Admission: TBA
Phone: 815-663-2850
Tour this grain elevator which is located on the Illinois River. See grain unloaded from trucks into bins and then loaded onto barges.

THE APPLE BARN

R.R. 4
Bloomington, Illinois
Hours: weekend afternoons August through October. Reservations are required 2 weeks in advance. Maximum group size is 30.
Admission: $2.00
Admission charge includes apple cider and doughnuts, both made fresh at the Apple Barn.
Phone: 309-963-5557
This 2-hour visit includes a tour of the apple orchards, the country market, and old-time crafts.

FUNK'S GROVE PURE MAPLE SYRUP

5 miles south of Bloomington on I-55
Shirley, Illinois
Hours: TBA
Tours offered from February 1 through March 31 each year anytime during the day. Monday through Friday is preferred, but tour will be given on weekends.
Admission: Free
Phone: 309-874-3220 or 3360
See how maple syrup is made, from the tapping of the trees to production of the syrup.

MARIMANN HERB FARM AND GINGERBREAD HOUSE

North End St. Louis Bridge Road
Hours: 10:00 - 5:00; Tuesday -Saturday.
Admission: Free
Phone: 217-429-1404
Enjoy the exciting world of herbs. The Gingerbread House, nestled in the country setting of the Mari-Mann Herb Farm, offer a very unique experience for young and old. Walk among the herb beds, deer trails and formal gardens. The Gingerbread House offers the widest selection of herb products found in this part of country.

LARSCH DAIRY

210 Greenwood Avenue
Bloomington, Illinois
Hours: 9:00 or 10:00, Monday, Wednesday and Friday and is limited to 20 people at one time.
Admission: TBA
Reservations are required 3 days in advance. No children under 6. Cameras are allowed.
Phone: 309-828-6257
Dairy industry tour includes viewing the mixing of and the bottling of milk and orange juice.

JOHNSON PRODUCTS COMPANY, INC.

8522 South Lafayette Avenue
Hours: Tours are given Tuesday, appointment only. The maximum group size is 30 and all visitors must be 12 years age.
Admission: TBA
Phone: 483-4100
Tour the plant and see the manufacturing of hair, face and hand cosmetics and then visit the offices to view the extensive art collection.

GARFIELD PARK CONSERVATORY

300 North Central
Park Boulevard
Hours: Open year-round from 9:00 - 5:00. Special shows 10:00 - 9:00 p.m.
Admission: Free
Phone 533-1281
World's largest public Botanic Conservatory under one roof.

LINCOLN PARK CONSERVATORY

2400 North Stockton
Hours: Open year-round from 9:00 - 5:00. During flower shows, hours are Monday - Thursday 9:00 - 5:00 p.m. Call for reservations.
Admission: Free
Phone: 294-4770
A one hour tour of the three acre greenhouse/conservatory of native and exotic plantlife.

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ABBOTT LABORATORIES

14th and Sheridan Road
North Chicago, Illinois
Hours: Tours are offered on weekends by appointment only, with advance notice of at least two months required. Contact the Manger of Customer and Guest Relations for arrangements.
Admission: Free
Phone: 937-7761
Tours of this pharmaceutical manufacturer are restricted to members of the allied health professions and include research, development and production of pharmaceutical and hospital products.

NORTHWESTERN MEDICAL CENTER
PRENTICE WOMEN HOSPITAL

333 East Superior Street and
Fairbanks Court
Hours: TBA
Admission: To Be Announce - One week advance notice is required. Group of 20 are desirable.
Phone: 649-8649
Will arrange tours to suite group.

OTTAWA INDUSTRIAL SAND

P.O. Box 577
Ottawa, Illinois 61350
Hours: TBA
Admission: TBA
Tours are available by appointment. Contact extension 217 for reservations. No one under high school age admitted.
Phone:
One hour tour of this silica sand mining plant shows the mining pit and the processing of silica sands. There is also an overlook of the mines on Boyce Memorial.

LOCK AND DAM #27

Foot of West 20th Street
P.O. Box 1227
Granite City, Illinois 62040
Hours: TBA

Admission: Call the lockmaster for reservations which are required.
Phone: 309-452-7107
See how the gears control the gate as boats and barges pass through the 1200 foot long and 110 foot wide locks. A demonstration is given on a model to show how the operation works.

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LOCK AND DAM #15

United States Army Corp of Engineers
Rock Island District
Clock Tower Building
P.O. Box 2004
Rock Island, Illinois
Hours: Open seasonally. Call in advance for arrangements.
Admission: TBA
Phone: 309-788-6412
Part of a system of locks and dams constructed to form pools for a nine foot navigational channel on the Mississippi River.

RECRUITMENT*VOLUNTEERS***FUNDING RESOURCES***

Are you interested in marketing your tutorial program to RECRUIT VOLUNTEERS?

CONSIDER BUYING: "101 ideas for Volunteer Programs"

Are you in need of ADDITIONAL RESOURCES to support your Black Churches Tutorial Program?

CONSIDER BUYING: "101 Ways to Raise Resources"

Both of these outstanding books are written by Steve McCurley and Sue Vineyard. Steve and Sue are internationally known trainers and consultants on nonprofit management, fundraising and volunteer involvement.

SOURCE: Kroch & Brentanos

COST: $6.95 Each

SPECIAL NOTE: If interested in purchasing, it will take 6 - 8 weeks to order these books.

Are you interested in SUPPLEMENTAL FUNDING for your tutorial program?

CONSIDER;

Gifts In Kind, Inc.
700 North Fairfax Street
Suite 610
Alexander, Virginia 22314
(703) 836-2121

PROCEDURE: Contact your local United Way to express an interest, and to ask to be added to the Gifts In Kind mailing list. When a donation is *available in your area, the local United Way will be contacted by Gifts In Kind, and they will, in turn, contact you.

TRY A BOOK CLUB: Teachers at West Springfield Elementary School encourage student reading through a book club of the month. Each month a theme is chosen which targets a specific age and interest group. Examples are:

- THE MONSTER BOOK CLUB
- THE CLIFFORD BOOK CLUB
- THE BEARY HAPPY READER CLUB
- THE READ THE WINTER AWAY BOOK CLUB

Students receive a prize for every five books read and students who complete all available titles are presented with a certificate. School officials say the program has provided renewed enthusiasm in recreational reading among the participating students.

SOURCE: The Apple Fairfax County Public School, 10700 Page Avenue, Fairfax VA 22030; 703/246-3662

Listed above are suggestions that can be disseminated to students. Hopefully, this information will encourage and promote academic success.

LIST YOUR OWN SCIENCE RESOURCE

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP CODE: _____

PHONE: _____

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP CODE: _____

PHONE: _____

NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP CODE: _____

PHONE: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP CODE: _____

PHONE: _____

March 24, 1992

In response to your inquiry on the Chicago Urban League Black Churches Project, please find enclosed an information packet. It includes a description of the program, its components and objectives.

Please feel free to contact me at (312) 285-5800, if you have any other questions about the program.

Forever in HIS Service,

Dondieneita Fleary-Simmons
Coordinator, Black Churches Project

BLACK CHURCHES PROJECT
PROGRAM DESCRIPTION

RATIONALE

The high quality of life in America has been, in no small part, created and maintained by our nation's strength in science and technology, a strength that is being threatened by a general decline in the quality of our science and mathematic education. This decline has reached crisis proportions for African-Americans and other minority students, as few Black youth are prepared for the technology that defines today's job market. Presently, only a small percentage of all employed scientists, engineers and mathematicians are Black (2%). However, projections for the 21st century indicate that 80% of the entering workforce will be required to possess more technological skill.

Children spend roughly half of their productive hours in school. Yet many, particularly minority children, have their natural curiosity about math and science stifled because of negative influences both inside and outside the classroom.

The Chicago Urban League, working in conjunction with the American Association for the Advancement of Science, is participating in a national initiative to bring good math and science educational experience to inner-city children. We believe there is an urgent need to make this population more technically competent and that the Black Church has established itself as a viable means of accessing minorities and gaining credibility within the community.

The Chicago Urban League/American Association for the Advancement of Science Black Churches Project was developed on the belief that support systems that can bring family and community together and can counteract negative influences and encourage young people to pursue successful careers in the sciences and technologies of the future.

OBJECTIVES

The primary objective of the Chicago Urban League Black Churches Project is to provide African-American children, particularly those who otherwise would be unable to access such opportunities, with quality instruction in the maths and sciences in a tutorial setting and with other experiences providing exposure to opportunities in the maths, sciences and related fields.

TARGET POPULATION

Participants are African-American youngsters of middle to low socio-economic status who are in the third through eighth grades of the Chicago Public Schools. All participants voluntarily enter the program, with the nomination of appropriate school or church personnel, and the support of an adult sponsor (or parent).

PRESENT STATUS

At present, there are over 200 Black churches in the Chicago area. Of these, approximately 67 operate effective tutorial programs in mathematics and science through the Chicago Urban League Black Churches Project. They also offer supplemental programming regarding literacy and language arts. The twenty-eight most recent additions to the program form the empirical data base for the project. In all cases where students receive tutorial assistance, grades and Iowa Text of Basic Skills scores are monitored. Additionally, records are kept on each child's program performance, (i.e. Individual educational assessment plan), and parental involvement.

In order to achieve stated objectives, the Chicago Urban League provides the Black Churches Project (BCP) a full-time project director who furnishes both material and technical assistance to churches participating in the program.

HOW IT WORKS

Forming and maintaining linkages are important for establishing and sustaining the tutorial project. The BCP operates through the coordinated efforts and linkages of various entities. The American Association for the Advancement of Science is linked with its funders, the Chicago Urban League and host sites. In turn, each host organization is linked to several churches in the city.

The Chicago Urban League BCP is linked with the churches of the city, the Chicago Public Schools, the family, several institutions of higher learning, the ACCESS 2000 Consortium, (a National Science Foundation funding consortium), the technical science community, museums and science centers.

Church Linkages:

The first linkage is to the churches. This is effected when, through media or personal contact, a church becomes aware of the Chicago Urban League BCP. The church then contacts the project director of the BCP for more information and is mailed a copy of the prospectus, a responsibility letter and an application. The church completes the application and returns this to the BCP. Soon after receiving the application the director contacts the church and sets an appointment to further discuss involvement in the BCP.

The project director meets with the pastor and the potential volunteer pool. During the course of this meeting grade levels and subject matter are decided, the day and the hours for programming and a start date are also generally established. The minimum requirement is for a church to spend four hours per week, time-on-task, in a combination of math and science learning activities.

School Linkages:

The next linkage comprises the **Pastor-to-Principal** connection. The Pastor makes an appointment with the Principal of the most proximate public school and discusses the planned tutorial with the principal. Upon receiving a statement of need and endorsement from the principal, the pastor will arrange a follow-up meeting between the site-coordinator, who facilitates the programs, and the appropriate school representatives. At the time of the second meeting, applications are shared with teachers of target grade children. The teacher then passes on the applications to all children in the classes for their parents to complete. A few days later, applications are retrieved and reviewed by the project director and site coordinator.

At that time, one or more groups of fifteen children are organized. Several factors are taken into consideration to determine the groupings. They include grade level, academic performance, behavior and special needs. An ideal group has more than two grade levels represented. Groups are generally divided to include approximately five children performing above grade level requiring acceleration and ten children who are at or below grade level and in need remediation.

Next, based on the constituency of the group and the specific subject matter, staff, usually from within the congregation or community are trained and assigned a group. Each group has its own individual staff consisting of one teacher and two tutors. The tutors may be parents who have participated in the mandatory training, allowing them to be eligible to tutor for wages. Often, tutors are accelerated high school or college students who are also trained to tutor and compensated with wages and scholarships.

Family Linkages:

The third linkage is formed with family. During the first week of programming, each site has an "opening." Families are invited to the church to meet the minister, the tutorial staff and the BCP project director. They participate in typical program activities and share dinner. At this point, much energy is expended to engage the participant families. While parental involvement is encouraged and rewarded, it is not required.

Professional Linkages:

The final link is forged with professional science partners. These linkages are vital to the quality of the project.

Organizations in this category provide crucial program funding, which is used to employ teachers and tutors, to purchase supplies, or to train and recognize volunteer staff. On average, direct costs associated with the above items are $7,000 per site for a six-hours per week, thirty-six week program and an additional $4,000 for the intensive 20-hour per week summer science/math academy. Funding sources are solicited to buy a program component, a cluster of five church-based sites.

Some organizations provide African-American students or active retired scientists to serve as trainers and mentors for a given site. Others supply technical equipment, (i.e. computers, microscopes, beakers, etc.). Still others offer special enrichment experiences such as field trips, special on-site presentations and so on.

No resources are given directly to personnel at participating church sites. The Urban League is in every sense the fiscal manager. The League allows the church to select appropriate materials and supplies and then CUL orders those supplies on the program's behalf. The League also hosts staff training, workshops, pays for food and transportation for special events and other program needs. The churches are encouraged to secure individual sources of supplemental funding.

PROGRAM TRAINING

In response to the varied training needs of the tutorial staff, two supplemental programs are offered: Family Math - special mathematics workshops provided at the University of Illinois Chicago Campus, and an Adult Mathematics course: a specialized tutorial "group" for adults interested in re-learning math in order to be able to tutor children. A similar teacher's group is held to equip teachers/tutor who have excellent skills but lack familiarity with using manipulative materials.

In addition to the math preparatory training, it has been necessary to provide training in each unit of science study. Again, the goal is to reacquaint teacher/tutors with hands-on methodologies. Training usually consists of full-day workshops which cover several experimental exercises.

Currently, our science units include: (1) Ecology (2) Botany (3) Oceanography (4) Sources of Energy (5) Solar System (6) The Human Body (7) Zoology (8) Weather and Climate.

Dear

Enclosed please find the parent letters and nomination forms to be completed for your elementary school to participate in the Chicago Urban League Black Churches Project.

This year the program will include excellent science curricula as well as math programs.

The programs are endorsed by Superintendent Kimbrough, past Chairman James W. Compton and Dorothy Strong, Director of the Bureau of Mathematics (CPS). The Program also has the endorsement of local universities, the American Association for the Advancement of Science, and the National Science Foundation.

We would sincerely appreciate your help in distributing these forms to your staff and student body.

If I can be of any assistance please don't hesitate to call. We greatly appreciate your help and commitment to the Black Churches Project.

Forever in HIS Service,

Dondieneita Fleary-Simmons, & Pastor
Project Direct _____Church
Black Churches Project

Dear Parent,

The most effective and productive means of improving our communities lie within the resources of the community itself, particularly when it comes to educating our youth. That's why together with the Chicago Urban League we are offering a maths and sciences tutorial program.

The program is both exciting and educational. It will offer hands-on experiences in math and science, spiritual and cultural enrichment and the opportunity to participate in several field trips. The program will be offered to ____ graders on _____, from _____ beginning _____.

The program is for all children. Those who are doing well and those who are struggling.

While parent participation is not required, we do encourage you to give as much time to the program as you can. Sometimes we need parents to attend field trips, participate in family nights, or make a few phones calls over the weekend.

If you would like your child to participate, please fill out the enclosed form return it to his/her teacher. You will hear from us soon regarding your child's acceptance.

Forever in HIS Service,

Dondieneita Fleary-Simmons, & Pastor
Project Director _____Church
Black Churches Project

TRI-COUNTY URBAN LEAGUE
TSTM PROJECT
PROGRAM MODEL 2
Community-Based Organizations/School District Collaborations

TOMORROW'S SCIENTISTS, TECHNICIANS AND MANAGERS - PEORIA, ILLINOIS

In 1975, the Tri-County (Peoria) Urban League, and the Peoria Chapter of the National Organization of Black Chemists and Chemical Engineers developed Tomorrow's Scientists, Technicians and Managers (TSTM), a program to supplement and support the math and science curriculums being offered in area public schools. Although the schools provided an adequate curriculum in science and math, African American students were not pursuing advanced course work in these subjects. The Tri-County (Peoria) Urban League serves Peoria, Tazewell and Woodford counties of central Illinois. In 1978, when the affiliate took full administrative responsibility for Tomorrow's Scientists, Technicians and Managers, African Americans were awarded only 1% of all bachelor degrees earned in the physical and life sciences. This was particularly alarming given the overwhelming number of jobs related to these disciplines projected for the next century.

PROGRAM GOALS

Tomorrow's Scientists, Technicians and Managers serves students in grades seven through twelve. TSTM is designed to encourage and motivate African American youth to acquire the necessary educational skills to pursue careers in science, technology, engineering and business. TSTM functions as a supplement to the curriculum of the local school systems and relies heavily on the cooperation of guidance counselors, teachers, parents and the community at large.

There are three major objectives of the TSTM program:

1. To increase the number of local African American and female students enrolled in math and science at the high school level.

2. To increase the number of local African American and female students enrolling in college, university, vocational or technical training programs pursuing majors in science, technology, engineering or business.

3. To increase the number of African Americans qualified to pursue careers in science, technology, engineering or business and therefore increase the number of African Americans successfully competing for job opportunities available in the Tri-County community and nationally.

TSTM Program Components

Working with an advisory committee of high school and college administrators, parent and community representatives, and students, the Tri-County (Peoria) Urban League developed specific components that would support successful achievement of program goals. Eight components form the basis of TSTM:

1. **Curriculum Selection:** Counseling is provided for TSTM students in the selection of their high school academic programs.

2. **College and Career Counseling:** Counseling is provided for college entrance preparation and guidance in career selection augmenting counseling available to students within the local school system.

3. **Academic Tutorials:** Tutoring by staff and volunteers is available to assist secondary school students with complex skills required in advanced mathematics and science courses.

4. **Field Training:** Contact with individuals working in engineering, mathematics, science and other related areas is provided through field trips to research centers, universities, engineering firms, local and national meetings of scientific organizations and other appropriate opportunities.

5. **Computer Literacy:** Program participants are exposed to and given the opportunity to use and gain proficiency on the IBM personal computer and an array of various software packages.

6. **Scholarship Incentive Program:** Scholarships are awarded to selected students who achieve a "B" average or above in college preparatory mathematics, physical science and English courses.

7. **Community Service:** Program participants are encouraged to contribute time and expertise to a community activity.

8. **Recognition:** Students who have successfully participated in the program and are scholarship recipients receive public recognition and community support for their efforts at the Annual TSTM Awards Banquet.

School district personnel, students, parents and the professional community identified what academic and societal needs were not being met in the Tri-County area. Their input helped determine program components. It is strongly advised that affiliates seek out the individuals and organizations the program seeks to impact to determine program emphasis.

Identifying Supplemental Needs

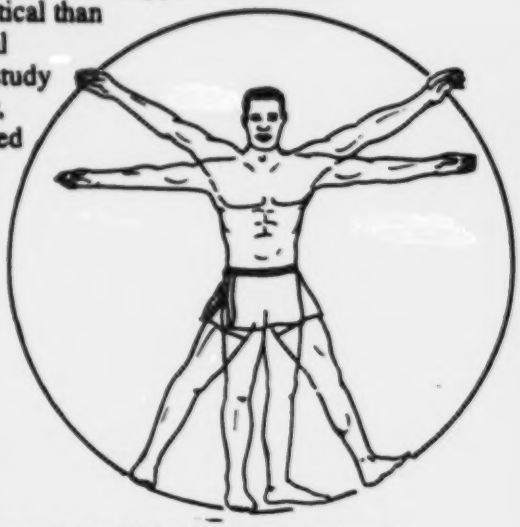
As the Tri-County (Peoria) Urban League began to implement the program's initial components, additional needs were identified. The affiliate discovered that high school students in the tricounty area tended to apply to only regional colleges with limited curricula. The TSTM Program responded by providing participants with additional information on a variety of colleges and universities offering diverse programs of study.

Challenging entrance requirements at some of the colleges revealed the need to provide preparation assistance for entrance exams. Each need uncovered by the TSTM program computer literacy, exposure to role models, and financial aid assistance-provided the impetus to adapt additional program components or to adapt existing ones.

CURRICULUM DEVELOPMENT AND TRAINING ACTIVITIES

TSTM is tailored to the high school math and science curriculums within the local school districts. Monthly lesson plans are paced to concur with classroom instruction at respective grade levels.

Using the local curriculum as a base, the TSTM club enhances and supports classroom instruction with activities that are more afro-centric and practical than textbook learning. For example, at a monthly meeting a local physician may address the club on a variety of subjects: the study of biological science to learn the function of the human body, chemistry in prescription medicine, computer technology used in medical research or the financial manage-ment aspect of running a medical practice/small business.
A historical perspective might then be added by providing information and encouraging discussion on African American physicians for example, Daniel Hale Williams and Charles Richard Drew, and their contributions to medical research and technology.



Activity Clubs

Students are also responsible for the development of the TSTM program curriculum. A participant's interest in knowing more about a specific topic or area of study has led The Tri-County Urban League TSTM club to develop separate activity clubs. There are currently four activity clubs formed:

The Computer Club provides hands on experience with personal computers; The Aviation Club familiarizes students with airplanes and flying skills; The Accounting Club teaches students about accounting career opportunities; and a Professional Image Club teaches students about public speaking and how to improve listening skills. Each of the supplemental programs expands on the basic program concepts and enhances student learning.

The Scholarship Program

The Frank Campbell Scholarship and the Caterpillar/Urban League Excellence Fund Scholarship are two scholarship programs offered through TSTM and a key incentive for student participation.

The Frank Campbell Scholarship Named after former Tri-County (Peoria) Urban League President Frank Campbell, this scholarship is awarded to the student who best exemplifies the characteristics of scholarship and community service. The recipient receives support for four years at Bradley University in Peoria and must pursue a degree in science, mathematics, engineering or business. The Scholarship is funded through Bradley University.

The Caterpillar/Urban League Excellence Fund For eleven years, Caterpillar Inc., the Peoria, Illinois Fortune 500 manufacturer of farm and construction machinery and equipmen thas contributed to the Caterpillar/Urban League Excellence Fund Scholarship for graduating African American high school seniors.

Students applying for these scholarships must meet specific eligibility requirements including intention to major in science, technology, engineering, business or other professional fields. Although the program is open to all applicants, preference is given to applicants who are active in the TSTM program. The scholarships provide full tuition for recipients attending one of nine local colleges or universities. Caterpillar's Manager of Community & Corporate Support, Mr. Henry

Holling, said that the Tomorrow's Scientists, Technicians and Managers Program is, "One of the premier education programs in the United States that Caterpillar continues to support the program because of its significant contribution to the Tri-County area and the entire country." Mr. Holling also noted that the TSTM Program was an investment in Caterpillar's future. In 1991, the Caterpillar Foundation awarded a $45,000 scholarship grant to the Tri-County (Peoria) Urban League. A scholarship application and a detailed description of required qualifications appears in the Resource Section for this model.

Community Outreach

An important requirement of the TSTM Program is Community Outreach. TSTM Club members are required to participate in community service programs each year. They volunteer their time as a way of showing appreciation to the community for its ongoing support of TSTM. Students may volunteer as tutors in the Urban League's After School Tutorial Program, at local hospitals or provide clerical support for the Tri-County (Peoria) Urban League.

Field Training

TSTM Club members take out-of-town trips to learn first hand about colleges, universities and careers. In past years, TSTM Club members have visited historically Black Colleges in Georgia, Louisiana and Washington D.C.; Cable News Network in Atlanta and various museums and historical sites.

Tomorrow's Scientists, Technicians and Managers Advisory Boards

Planning is critical to the success of the TSTM program. The program director and members of the Tri-County (Peoria) Urban League staff, the TSTM Parents Group and the TSTM Advisory Committee work together to develop a distinct plan of action for the year. The TSTM Advisory Committee counsels and assists the Tri-County (Peoria) Urban League in developing budgets, goals and objectives for the Program. The twenty member committee is comprised of Tri-County (Peoria) Urban League staff, TSTM parents, and members of the community including teachers and administrators from the local schools.

The TSTM Programs Committee works with the program director to develop the theme for the program's upcoming school year. The Programs Committee outlines the specific steps necessary to achieve objectives determined by the Advisory Committee. The committee begins its planning cycle at the end of the previous program year. School guidance counselors are consulted regarding the curriculum for the coming year. Student and parent evaluations of the previous year's activities are also taken into consideration. The committee then issues a plan that is used by the program director to develop the year's activities.

Based on this input, a calendar of events is created that includes club meetings, parent and advisory board meetings, special events such as college preparation sessions and field trips. Examples of activities developed for the Tri-County (Peoria) Urban League can be found in the TSTM Club Handbook in the Resource Section for Model 2.

The TSTM Handbook

The Tri-County (Peoria) Urban League develops a TSTM Club Handbook each academic year and distributes the handbooks to program participants at the first meeting of each program year. The Handbook contains important information for TSTM club members. It is a program reference document containing the following:

- Statement of Purpose and Basic Outline for the TSTM Program.
- Participant requirements to remain a club member in good standing and to be eligible for program opportunities such as field trips, job referrals, scholarships and special awards.

- TSTM Point System to measure the participation level of each TSTM Club member.
- Club Offices and requirements to hold office.
- TSTM Calendar of Events for the coming year.
- Tutorial Request Forms.

The Handbook also provides information and tips on developing good study habits, note and test taking, test preparation, essay writing and problem solving. The Handbook gives information on standardized tests students will be required to take during the school year. A college admissions planning calendar gives pointers on completing applications, visiting campuses and admissions interviewing as well as providing important planning milestones for students in their junior and senior years. There is also a suggested reading list on African American contributions.

Recruiting Participants

Tri-County (Peoria) Urban League staff meet with counselors in area high schools to recruit participants for the TSTM Club. Staff inform counselors of the benefits of the TSTM program for students in their school. Recruitment efforts utilize the local media by: 1) requesting that local radio and television stations run Public Service Announcements on the program detailing membership requirements; and 2) sending press releases to local newspapers, particularly community based publications, and asking them to do a story on TSTM and its positive contributions to the community. Recruitment can also be enhanced by utilizing opportunities to speak before parent and civic meetings and by requesting permission to post flyers in schools, churches and other public gathering places. Due to the longevity of the Peoria program (it has been in existence for over a decade), word of mouth among the students has become a significant r ecruitment factor.

Affiliates should be prepared to answer inquiries from students, parents and others concerning the program and be able give students an opportunity to sign up. Hand-out literature must adequately explain the program and provide potential participants with the time and place of TSTM meetings. Almost as important as the recruitment effort is the affiliate's ability to accommodate inquiries in an accurate and timely manner.

A copy of the TSTM Participant Record maintained for each participant appears in the Resource Section for this model.

Meetings and Program Newsletter

The Tri-County (Peoria) Urban League Tomorrow's Scientists, Technicians and Managers Club meets once a month during the academic school year, September through May. The satellite clubs (Computer, Aviation, etc.) meet outside of TSTM monthly meetings on a separate schedule.

TSTM participants in good standing, both academically and within the program, are eligible to hold office. The meetings are run by Roberts Rules of Order and familiarize participants with parliamentary procedure.

A monthly newsletter is published by the affiliate and mailed to participants' homes. The newsletter includes information related to TSTM activities and themes, and serves as a reminder of upcoming meetings and events. The newsletter also keeps parents informed of Club activities. A sample newsletter from the Tri-County (Peoria) Urban League TSTM Club is provided in the

RESOURCE MATERIALS
for
MODEL 2
Tri-County Urban League
Tomorrow's Scientists, Technicians & Managers

Resource Section for this model.

EVALUATION/PROGRAM IMPACT

At the beginning of each academic year, TSTM Club members are required to submit a copy of their high school transcript and a copy of their class schedule. At the end of each grading period, TSTM Club participants are required to provide the program director with a copy of their grade report.

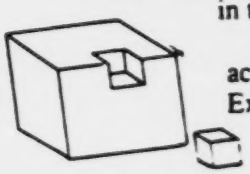
These documents are used to determine if the students are progressing toward achieving the objectives of the Program. The transcripts reveal if the club participants are taking additional math and/or science courses and if they are attempting a more rigorous course of study in these disciplines.

The affiliate tracks how many participants graduate from high school, continue their education, and,the number of participants pursuing careers in math and science. By gathering this information, the affiliate can determine the program's impact.

At the end of each academic year, TSTM graduates are asked to complete a questionnaire to track post high school academic and career plans. The questionnaires enable the Tri-County (Peoria) Urban League to determine if TSTM has had the desired long term impact on participants. Asample questionnaire appears in the Resource Section.

Impact on Participants

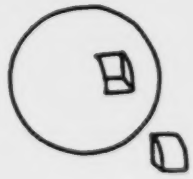
According to the TSTM program director, the two activities that have had the most significant impact on the participants are: 1) one-on-one counseling, and 2) exposure to occupations and individuals working in math-and science-related fields. Counseling reinforces participants' belief in their abilities.



They are encouraged to challenge themselves, to achieve.They are also given academic support through tutorials and participation in the TSTM satellite programs. Exposure to professionals and former TSTM participants who have gone on to pursue careers and courses of study in mathematics and the sciences also reinforces the confidenceof African American students in their ability to achieve in technical disciplines.

Impact On Parents, Teachers and The Community

Tomorrow's Scientists, Technicians and Managers has enabled parents, teachers and members of the community to work together toward a worthwhile goal. The program has increased the level of exposure to the maths and sciences for African American children and their families. It has also provided support for students to pursue challenging math and science courses and related activities. Teachers have benefitted from the support the TSTM Program provides students outside the traditional classroom such as TSTM tutoring and guidance and illustrative and practical components that supplement classroom instruction. These are resources of ten unavailable to African American children in the public schools.



TSTM's impact can be measured by the accomplishments of participants. As the young people in the Program improve their academic standing, further their education and share their expertise, the community profits.

PROGRAM EFFECTIVENESS

Three key measures of effectiveness have been used in evaluating the program: Student Participation, Program Growth and Development and Empirical Results.

Student Participation: A point system was designed to measure the level of member participation within the TSTM program. Various activities and achievements are assigned point values and participants accumulate points based on their level of activity. As an incentive to participate, members with the highest point values are given first consideration for field trips and awards. Points are not entirely assigned based on academic excellence or test scores but for attendance, participation in student recruitment efforts, community service and program participation. Every attempt is made to ensure that the program rewards participants for effort and not merely results. A full description of the TSTM Point System appears in the TSTM Handbook in the Resource Section.

Program Growth and Development: Another measure of program effectiveness is the continual growth in the number of students participating in the program. Other indicators include the number of grade levels the program encompasses and the number of satellite clubs and activities the initial program has generated. The Peoria program initially targeted high school students, however, the popularity of the program among students, parents and educators has resulted in the development of a TSTM club for seventh and eighth graders.

PROGRAM SUPPORT

The Tri-County (Peoria) Urban League TSTM Program receives support from participants and community organizations like the TSTM Parent Group which has been integral to the success of the program. The Group meets once a month at the same time as theTSTM Club and demonstrates its financial support by conducting fund raisers, finding speakers, acting as chaperons on field trips, functioning as program assistants, and providing support for the student at home.

Community Support

The community supports the program in many ways. Local college students tutor and speak to program participants on the expectations of college life or on pursuing specific fields of study. Local social and civic groups provide speakers and mentors. Local businesses underwrite scholarships, equipment and field trips. Local businesses open their doors to TSTM Club participants by providing summer employment and enabling TSTM participants to visit workplaces to witness scientists and technicians in action. Local colleges and universities have worked with the Tri-County Urban League to develop a summer enrichment program allowing students to spend two weeks taking math and science classes while experiencing campus life.Opportunities for community involvement are as varied as the community.

A Marketing Approach

A video tape including the program description, goals and objectives, testimonials from the director, local educators, parents and participants was developed for the Peoria TSTM program. The tape is used to solicit financial support and involvement from organizations, individuals, institutions and the media. The tape has proven to be quite effective for the TSTM program specifically and for the Urban League affiliate in general.

Tomorrow's Scientists, Technicians and Managers Program Funding

The TSTM Program is a component of the Tri-County (Peoria) Urban League education unit, hence, it is not funded as a separate entity. The affiliate recognizes that the TSTM Program is a major part of its educational outreach for the area. Potential underwriters award the affiliate education grants based on the success of the TSTM Program. A nominal portion of the TSTM budget comes from dues ($2.00 per meeting) paid by TSTM participants.

Staffing The TSTM Program

The Associate Director of Education for the Tri-County (Peoria) Urban League is the TSTM Program Director. The Director plans program strategy, develops the annual plan, markets the program and coordinates program volunteers. There is no other paid full-time staff for the TSTM program. The advisory committees, and other support groups are entirely composed of volunteers. The program also recruits college and high school students as well as other members of the community to advise, tutor and assist in other ways. Volunteers help the program director do the following: set the year's agenda, plan monthly meetings, recruit speakers and publish the monthly newsletter. The Annual TSTM Awards Dinner Banquet that closes the academic year and recognizes TSTM participants is coordinated by volunteer committee, the program director and the parent advisory group.

Keys To A Successful TSTM Program

Three key factors have contributed to the success of the Tri-County (Peoria) Urban League's TSTM Program:

1. PROFESSIONALISM. Stress Professionalism! Run the program as if it were a business. Hold meetings regularly, start them on time and make sure that program content is relevant to program goals. Publish goals and expectations for the participants.
2. FOCUS. Develop an annual plan for the program and stick to that plan! Long range planning allows the Program to take advantage of field trips and other opportunities, develop financial resources and enlist community support for the Program.
3. COMMITMENT. Develop unwavering commitment from the affiliate, parents, students and the community. Solicit community support early and cement that relationship.

RESOURCE MATERIALS
for
MODEL 2

Tri-County Urban League
Tomorrow's Scientists, Technicians and Managers

1. TSTM Participant Record.

2. Scholarship Qualifications and Application.

3. TSTM Graduate Questionnaire.

4. TSTM Handbook.

TSTM PARTICIPANT RECORD

CURRENT DATE:_____

NAME:_____
Last First Nickname

ADDRESS:_____
Street City Zip Code

PHONE:_____ SOCIAL SECURITY #:_____

CONTACT PHONE: (for emergency)_____
(relationship)

SCHOOL:_____COUNSELOR:_____

YEAR IN SCHOOL:_____

AGE:_____ BIRTHDATE:_____ SEX: F_____ M_____

ETHNIC BACKGROUND:
Black _____ Hispanic_____ Oriental_____ White_____ Other_____
(Specify)

ARE YOU ENROLLED IN YOUR HIGH SCHOOL'S:

GENERAL CURRICULUM:_____

COLLEGE PREPARATION CURRICULUM (enriched courses):_____

A R E Y O U E M P L O Y E D ? _ _ _ _ _ _ _ _ _ _
WHERE:_____

ARE YOU IN SPORTS/CLUBS, ACTIVITIES (PLEASE LIST):

Sport/Club: Dates (semester):

_____

_____

_____

C A R E E R G O A L :

_____

ARE YOU PLANNING TO ATTEND COLLEGE? _____

INTENDED MAJOR:_____

HAVE YOU TAKEN THE: ACT:_____ PSAT:_____ SAT:_____

PARENT/GUARDIAN: _____
Last First

IS THERE ANOTHER PARENT/GUARDIAN WHO SHOULD BE PLACED ON THE MAILING LIST?

NAME: _____
Last First

ADDRESS: _____
Street City Zip Code

I give permission for the above mentioned youth to participate in the Tri-County Urban League's TSTM Program, and understand that parents or guardians are encouraged to attend TSTM Parent Group meetings.

_____ _____
PARENT/GUARDIAN Signature Date

I understand the goals and activities of the Tri-County Urban League's TSTM Program, and agree to fulfill my responsibilities as a participant in TSTM.

_____ _____
STUDENT Signature Date

CATERPILLAR/URBAN LEAGUE EXCELLENCE FUND SCHOLARSHIP

The Tri-County (Peoria) Urban League is offering several one-year scholarships for academically talented minorities. The scholarship program is a component of the Tomorrow's Scientists, Technicians, and Managers Program (TSTM) which functions to encourage and motivate minority students having the ability to pursue careers in science, technology, business, and engineering. Monies for the scholarships are being provided by the Caterpillar Foundation.

One year scholarships will be available to pay the cost of tuition at any of the following universities.

Illinois State University
Purdue University
Bradley University
University of Illinois
Indiana University
University of Iowa
Iowa State University
Southern Illinois University
Western Illinois University

Also, a limited number of one-year scholarships may be awarded to help defray the cost of tuition up to a maximum of $2,000 at unspecified colleges or universities.

The minimum eligibility requirements for the scholarships are:

1. The applicant must be a U.S. citizen and a resident of Peoria, Tazewell or Woodford county at the time of application.

2. Applicant must be a racial minority.

3. Applicant must be a graduating senior during the current school year.

4. Applicant should have a B average.

5. Applicant must have completed a minimum of four high school semesters of math, science, and English.

6. Applicant must have been accepted for admission to one of the above-named universities or other 4-year accredited university at which the scholarship will be used.

7. Applicant must enroll in college as a full-time student for the Fall, 1991 term.

8. Applicant must have intentions to major in science, technology, engineering, business, or other professional field.

9. Preference will be given to applicants who are active participants in the Urban League's Tomorrow's Scientists, Technicians, and Managers Program.

10. The completed application and all related materials must be received by the TSTM Scholarship Committee by March 15, 1991. Incomplete applications will not be considered.

Each application must be accompanied by the following items:

1. An official high school transcript through the seventh semester indicating grade point average and class rank.

2. Schedule of classes now in progress.

3. Certification of ACT and/or SAT scores.

4. Copy of admission acceptance letter for at least one of the four-year colleges noted or other accredited colleges and universities where a scholarship is desired. Acceptance letter must specify college or discipline into which the student will be enrolled.

5. Three letters of recommendation -- one from a math or science teacher; two from persons of applicant's choice, (non-relative).

SUBMIT COMPLETED APPLICATION AND ATTACHMENTS NO LATER THAN MARCH 15, 1991 TO:

TSTM Scholarship Committee
c/o Mrs. Sharon Desmoulin-Kherat
Tri-County (Peoria) Urban League
317 S. MacArthur Hwy.
Peoria, IL 61605

CATERPILLAR/URBAN LEAGUE EXCELLENCE FUND SCHOLARSHIP APPLICATION

NAME _____ SOCIAL SECURITY NUMBER _____
(LAST) (FIRST) (MIDDLE)

ADDRESS _____
(NUMBER & STREET) (CITY) (COUNTY) (ZIP)

TELEPHONE NUMBER: AREA CODE ( ) _____

BIRTHDATE: ___/___/___ BIRTHPLACE: _____
MO. DAY YR. CITY STATE COUNTRY

U.S. CITIZEN: YES _____ NO _____ RACE: _____

PARENT(S)/GUARDIAN(S) _____
(RELATIONSHIP)

HIGH SCHOOL _____ COUNSELOR _____

GRADUATION DATE: _____/_____
MONTH YEAR

ARE YOU A MEMBER OF THE TOMORROW'S SCIENTISTS, TECHNICIANS, AND MANAGERS CLUB?

YES ___ NO ___ IF YES, WHEN DID YOU JOIN? _____/_____
MONTH YEAR

OVERALL GRADE POINT AVERAGE (AT THE END OF THE 7TH SEMESTER): ___/___
GPA SCALE

CLASS RANK (AT THE END OF THE 7TH SEMESTER): _____/_____
RANK CLASS SIZE

SAT: V___ M___ ACT: E___ M___ SS___ NS___ COMPOSITE___

LIST ALL OF YOUR HIGH SCHOOL MATH, SCIENCE, AND ENGLISH COURSES AND YEAR COMPLETED.

1. _____ 7. _____
2. _____ 8. _____
3. _____ 9. _____
4. _____ 10. _____
5. _____ 11. _____
6. _____ 12. _____

WHAT IS YOUR INTENDED COLLEGE MAJOR? 63

MAJOR: _____ MINOR: _____

BEST COPY AVAILABLE

LIST COLLEGES AND UNIVERSITIES TO WHICH YOU HAVE BEEN ACCEPTED. (PLEASE LIST IN ORDER OF PREFERENCE.)

1. _____ 5. _____

2. _____ 6. _____

3. _____ 7. _____

4. _____ 8. _____

LIST ALL FINANCIAL ASSISTANCE. (INCLUDING SCHOLARSHIPS), FOR WHICH YOU HAVE APPLIED AND INDICATE THOSE ALREADY AWARDED TO YOU.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

LIST YOUR EXTRA-CURRICULAR ACTIVITIES DURING YOUR HIGH SCHOOL YEARS INCLUDING EMPLOYMENT.

_____

_____

_____

_____

_____

ON A SEPARATE SHEET, PLEASE WRITE A 500 WORD ESSAY EXPLAINING YOUR FUTURE GOALS AND WHY YOU SHOULD RECEIVE THE CATERPILLAR/URBAN LEAGUE EXCELLENCE FUND SCHOLARSHIP.

I HEREWITH CERTIFY THAT THE INFORMATION PROVIDED IN THIS APPLICATION IS TO THE BEST OF MY KNOWLEDGE, COMPLETE AND CORRECT.

_____ _____

SIGNATURE OF STUDENT DATE

_____

SIGNATURE OF PARENT OR GUARDIAN

TRI-COUNTY (PEORIA) URBAN LEAGUE, INC.

TSTM GRADUATE QUESTIONNAIRE

NAME_____

PERMANENT MAILING ADDRESS_____

_____

PHONE_____

Numbers of Years in TSTM _____

High School Attended_____

Year of High School Graduation_____

1). Are you presently attending college?

YES_____ NO_____

If yes, your college address:_____

_____

_____

2.) Major:_____ Current G.P.A._____

Anticipated Graduation Date_____

3.) Will you be pursuing a career in Peoria following graduation?

YES_____ NO_____

If no, where:_____

4). If you are not currently attending college, please answer the following questions:

4a). Did you graduate from college?

YES_____ NO_____

If yes, what degree(s) did you earn?

Bachelors_____
Major

Masters_____
Major

Doctorate_____
Major

4b). Reasons for <u>not</u> attending school other than graduation:

___ Lack of financial assistance

___ Academic advisement / grades

___ Personal reasons

4c). Are you currently employed? YES_____ NO_____

If yes, what is your current profession/job title?

_____

Where are your employed?

_____

_____

_____

What is your salary range? _____0-$15,999

_____$16,000 - $20,999 _____$21,000 - $25,999

_____$26,000 - $30,999 _____$31,000 - $35,999

_____$36,000 - $40,999 _____$41,000 - $50,000

_____over $50,000

5). Was participation in TSTM a benefit to you and how?

_____

_____

_____

6). What could TSTM have discussed that would have been beneficial?

_____

_____

_____

7). Were you a recipient of the Caterpillar/TSTM Scholarship?

YES_____ NO_____

If yes:

7a). Did TSTM provide you with adequate information about additional sources of financial aid?

YES ____ NO____

7b). Were all your financial needs met during your freshman year?

YES_____ NO_____

7c). Were your financial needs met during subsequent years of study?

YES_____ NO_____

7d). Please list the sources through which you received financial assistance while in college.

_____

_____

_____

_____

8). Was competition for a TSTM Scholarship:

Very Difficult_____ Difficult_____ Easy_____

9). Do you know the whereabouts of other members of TSTM in your graduating class?(please indicate names and addresses).

_____

_____

_____

_____

_____

_____

_____

10). Do you feel TSTM had weaknesses which could be improved?

YES____ NO____

If yes, how?_____

_____

_____

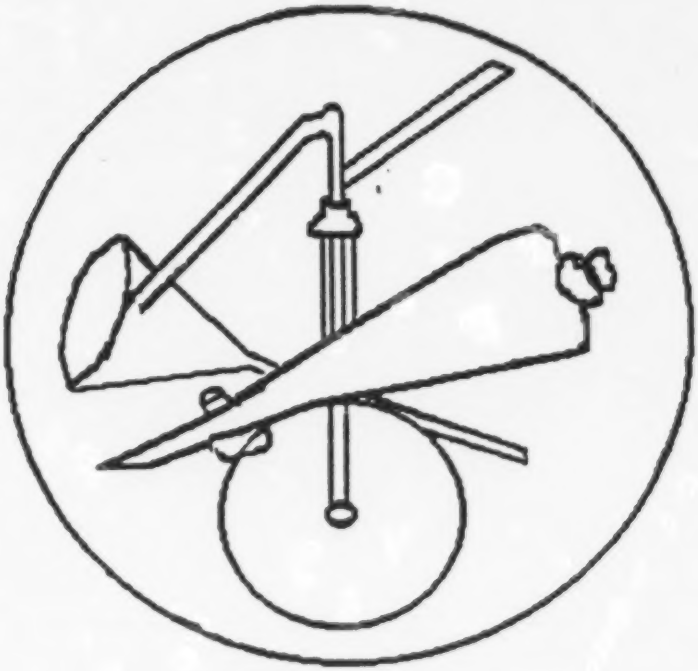
_____

Return to: Tri-County (Peoria) Urban League
317 S. MacArthur Hwy.
Peoria, IL 61605

ATTN: Tobie McMahon

PLEASE RETURN BY AUGUST 18, 1989

TOMORROW'S SCIENTISTS, TECHNICIANS AND MANAGERS PROGRAM



1991 — 1992 HANDBOOK

Tri-County (Peoria) Urban League
317 S. MacArthur Highway
Peoria, IL 61605
(309) 672-4353
(309) 672-4361
(309) 673-7474

TRI-COUNTY (PEORIA) URBAN LEAGUE
317 S. MacArthur Hwy.
Peoria, IL 61605
#672-4353
#672-4361

TOMORROW'S SCIENTISTS, TECHNICIANS AND MANAGERS PROGRAM

1991 - 1992

Frank Campbell -	President
Sharon Desmoulin-Kherat	Associate Director
Linda Mozeke -	Program Assistant
Michelle Wells-	Program Assistant
Charles Weldy-	TSTM Parent President
LaColis Reed III -	TSTM Student President

The Tri-County (Peoria) Urban League is an affiliate of the National Urban League, and a member agency of the Heart of Illinois United Way.

STATEMENT OF PURPOSE

The Tomorrow's Scientists, Technicians, and Managers Program (TSTM) was developed by the Tri-County (Peoria) Urban League, Inc. and the Peoria chapter of the National Organization of Black Chemists and Chemical Engineers in response to the need for increased numbers of minorities and females entering the scientific, technical, and business labor markets. In 1978, when the Tri-County Urban League took full administrative responsibility for TSTM, only 1% of all bachelors degrees awarded in the physical and life sciences were received by blacks. Similarly, only 2% of all bachelors degrees in engineering were received by blacks. Ironically, these highly skilled occupations are the very ones which currently, as well as in the future, are expected to experience considerable growth. Therefore, the TSTM Program was designed to help meet the aforementioned needs by encouraging and motivating minority and other similarly disadvantaged youth who have the ability to acquire the necessary prerequisite educational skills to pursue careers in science, technology, engineering, and business. TSTM functions as a supplement to the structure and curriculum of the local school systems and relies heavily on the cooperation of guidance counselors, teachers, parents, and the community.

The goals and objectives of TSTM are consistent with the Urban League's overall objective of contributing to the constructive development of youth. The anticipated results are:

(1) increased numbers of local minority and female students enrolled in math, science, and English at the high school level.

(2) increased numbers of local minority and female students enrolling in college, university, vocational or technical training programs and pursuing majors in science, technology, engineering or business.

(3) increased numbers of minority persons qualified to pursue careers in science, technology, engineering, or business. Thus, an increased number of minority employees can compete for the job opportunities available in these areas, hopefully in the Peoria community.

Participants in the TSTM Program are encouraged to:

(1) enroll in high school courses which will prepare them for college programs in science, mathematics, engineering and other related areas.

(2) to strive for achievement through utilizing good study habits, academic tutorials, enrichment programs, and the TSTM Scholarship Incentive Program.

(3) to enhance awareness of career opportunities through intensive career counseling, seminars, workshops, and field trips.

(4) to enter college by participating in college and career counseling activities and college visits.

(5) to acquire leadership skill by participating in the various activities of the TSTM club.

BASIC OUTLINE OF TSTM

The TSTM program functions as a supplement to the structure and curriculum offerings of the high schools and relies heavily on the cooperation of the carer counselors, teachers and parents. Basic to the TSTM approach is the early inclusion of extensive and continuous motivational material such as accurate information as to the kind of work scientists and technologists do, employment opportunities, and academic requirements.

THE TSTM PROGRAM CURRENTLY CONSISTS OF NINE BASIC COMPONENTS:

1. CURRICULAR SELECTION

   Special counseling is provided for TSTM students in the selection of their high school program.

2. COLLEGE AND CAREER COUNSELING

   The TSTM program provides special counseling for college entrance preparation and guidance in career selection This serves to augment the counseling normally available to all students in the schools.

3. ACADEMIC TUTORIALS

   Many secondary school students have not had the background and curriculum experience which facilitates dealing with the complexity of skills required in advance mathematics and science courses. Tutoring is offered to TSTM students in those subject areas by a professional tutors.

4. FIELD TRAINING

   In addition to the academic and skill acquisition opportunities of the TSTM program, actual contact with individuals working in engineering, mathematics, science, and other related fields is provided through field trips to facilitate such as research centers, universities, engineering firms, and national meetings of scientific organizations.

5. SUMMER ENRICHMENT PROGRAM

   The TSTM program provides a variety of summer enrichment activities, consisting of enrichment classes, referral to summer college programs, and summer employment opportunities offered by local employers.

6. TSTM COMPUTER CLUB

All TSTM club members are encouraged to familiarize themselves with an IBM personal computer and an array of various software packages. Computer club is held on Tuesday nights throughout the school year.

7. SCHOLARSHIP INCENTIVE PROGRAM

Scholarships are awarded to selected students who achieve a "B" average or above in college preparatory mathematics, physical science and English courses.

8. COMMUNITY SERVICE PROJECTS

This component of the TSTM program serves to encourage the students to maintain direct communication and contact with the community.

9. ORIENTATION/RECOGNITION

An awards program is conducted to pay recognition to those TSTM students who have successfully participated in the program. The banquet is also a means of acquainting the community with the various activities of TSTM. An orientation session is held the first meeting of the school year to review all activities.

TSTM CLUB MEMBER IN GOOD AND REGULAR STANDING

The TSTM Program offers many opportunities for TSTM Club members such as out-of-town field trips, job referrals, access to computer equipment, participation in special programs, scholarships, special awards, etc. In order for a TSTM Club member to be given consideration for these various opportunities, he or she must be a TSTM Club member in "Good and Regular Standing."

The requirements for "Good and Regular Standing" are as follows:

1. Must be a high school student currently enrolled in English and math and or/science classes each semester.
2. Must submit a copy of the high school transcript at the beginning of each school year. (Freshmen are excluded.)
3. Must submit a copy of class schedule at the beginning of each semester.
4. Must submit a copy of grade report at the end of each grading period. No grade reports will be accepted after the deadline set by the Project Director for each grading period.
5. Must maintain an "A" or "B" in English, math, and science each grading period; or be enrolled in the TSTM tutoring program and attend tutoring sessions regularly.
6. Must participate in TSTM activities whenever possible.
7. Must participate in all TSTM community service projects, leadership awareness project, and fund raisers.
8. Must pay TSTM Club dues of $2.00 each month (Sept. - June).
9. Must behave properly during all TSTM activities. Disruptive behavior can lead to expulsion from the TSTM Club.
10. Must abide by any additional rules or requirements determined by the TSTM Project Director.
11. All of the above requirements will be strictly enforced. There will be no exceptions!

TSTM POINT SYSTEM

The TSTM Point System was developed by the staff to measure in an equitable fashion the participation level of each TSTM Club member. A specified number of points is assigned to most TSTM activities. Club members accumulate points by participating in these activities. Those club members who are in "Good and Regular Standing" and have accumulated the highest number of points will be given first consideration for out of town field trips. Also, these club members will be considered for the "Most Active TSTM Club Member" award at the end of the program year.

1. TSTM Club members will receive one (1) point for each TSTM Club meeting they attend.

2. TSTM Club members will receive two (2) points for each TSTM workshop, seminar, or special event they attend.

3. When specified, TSTM Club members will receive one (1) point up to three (3) for each high school age guest they bring to a TSTM workshop, seminar or special event.

4. TSTM Club members will receive two (2) points for each community service project and fund raising project in which they participate.

5. If a TSTM Club member cannot attend a TSTM Club meeting or other TSTM activity, he or she can receive one half of the points assigned to that activity if, and-only-if:

   a. Student must miss the activity because of participation in a school related activity or work. No other excuses are acceptable, and

   b. The student's parent must submit a written excuse or call the Project Director at least one day before the activity.

   No excuses will be accepted on or after the day of the activity.

6. The awarding of points is the sole and final decision of the Project Director.

7. In order to receive credit for attendance, it is the responsibility of each TSTM Club member to sign the attendance sheet at all TSTM activities. If you fail to sign the attendance sheet, no points will be awarded to you for that activity.

8. TSTM Club members are encouraged to check with the Project Director periodically to ensure that all earned points have been properly recorded.

1991 -1992 TSTM CLUB OFFICERS

PRESIDENT

LaCOLIS REED, III
1502 W. BUCKINGHAM DR.
PEORIA, IL. 61614
692-1271
SENIOR - WOODRUFF HIGH SCHOOL

VICE-PRESIDENT

JANAY DURAND
2834 W. KNOLLWOOD CT.
PEORIA, IL. 61604
688-9204
SENIOR - NOTRE DAME HIGH SCHOOL

SECRETARY

SHANNON WINTERS
3500 W. BANNAIRE CT.
PEORIA, IL. 61614
685-3888
SOPHOMORE - PEORIA HIGH SCHOOL

HISTORIAN

LaSHAY CARTER
908 1/2 E. FRYE
PEORIA, IL. 61603
688-3594
SOPHOMORE - MANUAL HIGH SCHOOL

PARLIAMENTARIAN

KIM WILLIAMS
2119 W. VIRGINIA AVE.
PEORIA, IL. 61604
682-4988
SOPHOMORE - PEORIA HIGH SCHOOL

REQUIREMENTS OF TSTM CLUB OFFICERS

A. The President shall:

1. Be a member in good standing.
2. Have submitted all papers, transcripts, schedules as required.
3. Have a minimum of 3.0 G.P.A.
4. Be a junior at time of election.
5. Be of good character.

B. The Vice- President shall:

1. Be a member in good standing.
2. Have submitted all papers, transcripts, schedules as required.
3. Have a 3.0 G.P.A.
4. Be at least a sophomore at time of election.
5. Be a good character.

C. The Secretary shall:

1. Be a member of good standing.
2. Have submitted all papers, transcripts, schedules as required.
3. Have a minimum of 3.0 G.P.A.
4. Be at least a sophomore at time of election
5. Be of good character.

D. The Treasurer shall:

1. Be a member of good standing.
2. Have submitted all papers, transcripts, schedules as required.
3. Have a 3.0 G.P.A.
4. Be at least a sophomore.
5 Be of good character.

E. The Parliamentarian and Historian shall:

1. Be a member of good standing.
2. Have submitted all papers, transcripts, schedules as required.
3. Have a 3.0 G.P.A.
4. Be at least a sophmore.
5. Be of good character.

TSTM Calendar of Events for 1991-1992

September 7 - TSTM Meeting

September 15 - September 17 - Tutoring begins

September (tba) - TSTM Family picnic

October (tba) - Computer Club begins
6:00 - 7:30 PM

October 5 - TSTM Meeting

October 16 - ICC College Night

October (tba) - TSTM College Preparation workshop

November 2 - TSTM Meeting

December 7 - TSTM Meeting

January 4 - TSTM Meeting

February 1 - TSTM Meeting

March 7 - TSTM Meeting

April 4 - TSTM Meeting

May 2 - TSTM Meeting

1990-91 TUTORIAL PROGRAM

REQUEST FOR TUTOR

DATE: _____

NAME: _____
Last First Middle

ADDRESS: _____
Street City Zip

PHONE: _____ AGE: _____ SEX: F: _____ M: _____

PARENT/GUARDIAN NAME: _____

SCHOOL ATTENDING: _____

GRADE LEVEL: 1 2 3 4 5 6 7 8 9 10 11 12

CLASSES IN WHICH TUTORING IS NEEDED:

CLASS	TEACHER'S NAME

SPECIFIC INFORMATION THAT WOULD HELP THE TUTOR DURING THE TUTORING SESSION:

_____

_____

_____

REQUEST FOR DAY AND TIME:

MONDAY: 4 5 6 7

TUESDAY: 4 5 6 7

WEDNESDAY: 4 5 6 7

THURSDAY: 4 5 6 7

START DATE: _____ END DATE: _____

SPECIFIC GUIDING PRINCIPLES FOR A STUDY SCHEDULE

When you are preparing your study schedule you will want to consider all factors that affect your daily and weekly living programs. The following principles can guide you in the preparation of a study schedule.

1. MAKE TO DO LIST.
2. MAKE A WEEKLY SCHEDULE AND FOLLOW IT.
3. MAKE A CALENDAR OF IMPORTANT DATES.
4. STUDY DURING YOUR PRIME TIME.
5. STUDY IN 20 MINUTE BLOCKS.
6. STUDY HARDEST FIRST.
7. DEVELOP PERSONAL STUDY SIGNALS.
8. SET A GOAL FOR EACH CAUSE.
9. TELL OTHERS YOUR STUDY TIME.
10. RESOLVE TO STICK TO YOUR STUDY SCHEDULE.
11. DO ALL OR MOST OF YOUR STUDYING IN A DESIGNATED PLACE.
12. USE YOUR STUDY DESK FOR STUDY, NOT FOR A VARIETY OF ACTIVITIES.
13. RID YOUR DESK OF ANY DISTRACTIONS TO STUDY.
14. IF YOU HAVE A ROOM IN WHICH ANOTHER STUDENT IS STUDYING, ARRANGE YOUR CHAIRS SO THAT YOU SIT BACK TO BACK.
15. KEEP YOUR SEMESTER'S STUDY LOAD WITHIN THE LIMITS OF YOUR ABILITY.
16. DON'T ATTEMPT TOO MANY DIFFERENT KINDS OF ACTIVITIES.
17. USE MAXIMUM EFFORT WHEN YOU STUDY: DON'T LOAF OR DAYDREAM.
18. PLAN YOUR PLAY HOURS AS CAREFULLY AS YOU PLAN YOUR STUDY TIME.

TIPS ABOUT TAKING CLASS NOTES

1. Before each class, review your textbook assignment and notes from last time so you will be fully prepared to resume where you left off.

2. Keep your notes in either a looseleaf or a spiral notebook, depending upon how much later reorganization your notes will require. The looseleaf notebook permits much greater flexibility for later reorganization.

3. Take all notes in ink because pencil tends to smear easily and often becomes illegible after a few weeks.

4. Date and identify each set of notes and keep notes from different courses separate from one another.

5. Take your notes in outline form whenever possible, as an outline will make for ease in study later. Use the sentence form of notetaking, however, if your instructor tends to ramble or if class discussion makes outlining impossible.

6. Take notes in your own words instead of writing down exactly what the instructor says. Exceptions are definitions, diagrams, or quotations.

7. Avoid doodling in class because it might cause you to miss or misunderstand an important point.

8. To assure full comprehension later, take your notes as neatly as possible and avoid unfamiliar abbreviations.

9. Be alert to points your instructor emphasizes by means of repetition, writing on chalkboard, extended comment, etc.

10. Make certain that you record correctly all names, dates, places, formulas, equations, rules, etc.

11. Keep alert and attentive in class by entering into class discussion, predicting likely test questions, comparing lecture and textbook content, etc.

12. Review and clarify your notes as soon as possible after class, but do not recopy them. Use page margins to fill in abbreviations, add omitted points and correct errors.

TIPS ABOUT PREPARING FOR TESTS

1. Keep up with your reading assignments so that studying for a test will be the reviewing of familiar material. Frantic last-minute cramming of new material usually results in faulty remembering.

2. To avoid completely rereading textbook assignments later, prepare them for reviewing by underlining key works and phrases and outlining underlined material.

3. Do not be afraid to ask questions about material you do not understand. You cannot remember something unless you first understand it!

4. Review each course at least once a week during the semester. Reread class notes, workbook exercises, outside reading notes, textbook underlining, etc.

5. In reviewing, spend most time on the material that is least familiar, but review briefly the material that is most familiar.

6. In reviewing, prepare a list of likely test questions and make certain that you can give the correct answers to each in your own words.

7. Keep correct, and review returned quizzes and exams. Check with your instructor if you are uncertain about the correct answer to a question that you missed.

8. Study your instructor's "test technique" so you will know what type of objective question he favors and what kind of essay answer he expects.

9. Concentrate on remembering specific details (who, when, where) when studying for an objective test; concentrate on understanding broad concepts (what, why, how) when studying for an essay exam.

10. Study and practice on questions from your textbook, workbook, previous exams, and other sources also available to your instructor.

11. Where possible, ask the instructor what material will be covered on an examination - textbook assignments, class lectures, outside readings, movies and filmstrips, laboratory experiments, etc.

12. Complete long-term projects well in advance of scheduled exams so that your time will be free for intensive reviewing.

13. To minimize study fatigue, break intensive study session with 5-10 minute rest periods every hour.

14. Review likely test questions with other students in small study groups of two to four members after each has first studied independently.

15. Do not endanger your health and test grade by using "No-Doz" or Pep Pills to stay up all night"cramming" for an exam. You will be able to think more logically if you get a reasonable amount of sleep on the night before a major test.

16. Review for problem solving tests by memorizing formulas and equations, as needed, and working examples of each type problem likely to appear on the test.

TIPS ABOUT TAKING TEST

GENERAL HINTS

1. Read the test directions twice, making sure you fully understand what is expected, and follow instructions exactly.

2. Read each test question carefully and completely before marking or writing your answer.

3. Ask your instructor for help in interpreting a test question that is unclear or ambiguous to you. He probably will want to clear up the misunderstanding for everybody if his question really is misleading or confusing.

4. Be very careful not to give any impression of cheating by glancing at the test paper of another student.

5. Do not be disturbed about other students finishing before you do; take your time, think carefully, don't panic and you will do much better on the test.

6. Be sure to make arrangements with your instructor about making up any test that you have missed or will have to miss. Many instructors give an automatic "F" on missed tests that are not made up.

HINTS FOR OBJECTIVE TESTS

7. Answer all questions in order without skipping or jumping around. Identify doubtful answers by marks in the margin and recheck these if time permits after all questions have been answered.

8. Do not linger too long on any one question; mark your best guess and return later if time permits.

9. Be cautious about changing your answers to multiple-choice and true-false questions without a good reason. Your first "guess" is more likely to be correct than are subsequent "guesses".

10. On true-false questions, be alert for qualifying words such as "all", "none," "always," and "never," which generally make a statement false, or "most," "some," "usually," and "seldom," which tend to make a statement true.

11. On true-false questions, be alert for modifying or limiting phrases inserted into the sentence. Instructors often use inserted names, dates, places, and other items to make a statement inaccurate.

12. On true-false questions, be alert for multiple ideas or concepts within the same statement. All parts of a

13. On multiple-choice questions, be alert for grammatical inconsistencies between the question stem and the answer choices. A choice is almost always wrong if it and the stem do not make a grammatically correct sentence.

14. On matching exercises, first match out those choices about which you are sure, then it will be easier to match out the rest about which you are uncertain.

HINTS FOR ESSAY TESTS

15. Read all the questions through first so that your answers will not overlap each other and so that you can judge a proper rate at which to work.

16. Answer the easiest question first and concentrate on answering one question at a time.

17. Keep track of time so that you do not get carried away answering one question. Give the major points and leave space for later elaboration if time permits.

18. To insure good organization and prevent careless omissions, make a brief outline before you start writing your answer.

19. Include as many specific facts as you can to support your answer. These impress your instructor by giving evidence that you know what you are talking about.

20. Decide what kind of answer the question requires before you begin writing. A different style of answer is required for such action verbs as "illustrate, "list," define," "trace," and "compare."

21. Write legibly and make your corrections, if any, as neatly as possible. Most instructors react favorable to neatness, so let this work for you rather than against you.

22. Recheck all answers for content accuracy, careless omissions, and mistakes in grammar, spelling, and punctuation.

HINTS FOR PROBLEM-SOLVING TESTS

23. Write down hard-to-remember formulas, equations, rules, etc., before you actually begin working on the test problem.

24. If you are unable to work a problem, go on to the next one and come back to it later if you have time.

25. Even if you know that your answer is wrong, turn in your work because you may get part credit for using the right process.

26. Show all the steps in your work and clearly identify or label your answer so that it can be quickly found.

27. Do not be in a hurry to turn in your paper and leave. To minimize careless errors, recheck all computations and check for misplaced decimal points.

ACT INTRODUCTION

Since it was introduced in 1959, the ACT Assessment has been a vital link in American education. Each year, more than one million ACT-tested high school students use their results in making educational and career plans and in comparing and selecting colleges. Thousands of the nation's high schools rely on ACT Assessment results as a basis for counseling, other students services, and curriculum evaluation. And more than 3,300 two-year and four-year colleges, state educational systems, and scholarship agencies depend on ACT Assessment results not just in admissions but also in advising, placement, scholarship awards, enrollment management, and other functions.

THE ENHANCED ACT ASSESSMENT

First administered in October 1989, the Enhanced ACT Assessment is an expanded and updated program that provides students and educators with new kinds of information for meeting the challenges of the 1990s and beyond. The Enhanced ACT Assessment is a revised program that is responsive to adjustments in high school curricula and sensitive to current expectations about the academic background that students need for success in college.

Like its predecessor, the Enhanced ACT Assessment includes the High school Course/Grade Information questionnaire, the ACT Interest Inventory, and the Student Profile Section, all of which students complete when they register for a national test date. The Enhanced ACT Assessment also includes four timed tests of educational development, which students complete under standardized conditions at an ACT test center.

The changes in the Enhanced ACT Assessment involve test content and test scores. The new tests - English, Mathematics, Reading, Science Reasoning, - measure a broader array of knowledge and skills than did the original tests. In addition to four test scores and a Composite (average) score, the Enhanced ACT Assessment yields subscores in seven carefully defined areas. These changes allow ACT to report in greater detail students' readiness to perform the kinds of cognitive tasks that will be required of them in college.

ACT ASSESSMENT
TEST DATE SCHEDULE

1991-1992

TEST DATE	REGULAR REGISTRATION POSTMARK DEADLINE (regular fee)	LATE REGISTRATION POSTMARK DEADLINE (additional fee)
OCT. 26, 1991	SEPT. 27, 1991	OCT. 11, 1991
DEC. 14, 1991	NOV. 15, 1991	DEC. 02, 1991
FEB. 08, 1992	JAN. 10, 1992	JAN. 27, 1992
APR. 11, 1992	MARCH 13, 1992	MAR. 30, 1992
JUN. 13, 1992	MAY 15, 1992	JUN. 01, 1992

ADMISSION PLANNING CALENDAR

Junior Year

September	Check with your high school guidance counselor about sitting for the National Merit Scholarship Qualifying Test (PSAT/NMSQT).
	Review your academic program for the year and decide what courses you must take in your senior year to prepare you for college.
October	Sit for the PSAT/NMSQT Test.
November	Apply for a Social Security Number if you do not already have one because a number of colleges require it to file an application.
December	Review the results of the PSAT/NMSQT Test with your guidance counselor.
January	Register for the April administration of the Scholastic Aptitude Test.
	Start thinking about the type of colleges you would like to apply to.
February/March	Plan your academic schedule for your senior year wisely.
	Start writing to colleges requesting that they send you literature about their academic programs. Review the various college guide books in your high school guidance office or career center.
	Register for the May/June Achievement Tests or SAT.
April	Sit for the Scholastic Aptitude Test.
	Continue to evaluate your college choices

	and write for information.
	Begin to seriously investigate the Military Academies if interested. Contact your United States Congressional Representative or Senator to request a nomination.
May	Check to see if a college night/day/fair is being held in your area and plan to attend with your parents.
	Take the Achievement Tests (if registered).
June	Take the Achievement Tests or Scholastic Aptitude test (if registered)
	Refine your list of colleges and write letters inquiring about Summer visitation programs.
July/August	Visit the various colleges you have contacted with your parents.

SENIOR YEAR

September	Register for the November Scholastic Aptitude Test or the October American College Testing Program (ACT).
	Schedule a meeting with your high school guidance counselor to discuss your college choices and to make sure your academic background is appropriate to apply to these schools.
	Write to the colleges of your choice requesting an application for admissions.
	Continue visiting college campuses and meet with college representatives when they visit your high school.
October	Make contact with the teachers that you would like to write recommendations on your behalf.
	Make a list of all your activities and work experiences that can be included on your applications.

	If you have decided to apply early decision at particular college file the application now.
	Sit for the ACT test if registered.
	Contact colleges directly to see if there is an audition or portfolio required if you want to major in the fine arts.
November	Sit for the SAT examination and request that your test results be mailed directly to the colleges to which you wish to make application.
	Investigate various scholarship options and file the required paperwork.
	Do the best you can academically this quarter.
December	Sit for the SAT/Achievement examinations and request that your test results be mailed directly to the colleges to which you wish to make application.
	File all your college applications.
	Touch base with your guidance counselor to make sure all your applications were mailed.
January	Continue to do the best you can academically don't get "senioritis".
	If registered take the Achievement Tests or Scholastic Aptitude test and request that the test results be mailed directly to the college to which you filed applications.
February/March/ April	Monitor your applications to make sure all the required documentation was received.
	You will start receiving admissions decisions. Decide where you want to enroll and pay the required Admissions deposit by the required deadline (which is usually May 1 the candidates common reply date)
May	Enjoy the remainder of your senior year and continue keeping up the good work academically.

Preliminary Scholastic Aptitude Test (PSAT/NMSQT)
A shorter version of the SAT given during the sophomore or junior year of high school. The test also serves as a basis for determining National Merit Scholarship winners.

Reserve Officers' Training Corps (ROTC)
A scholarship/training program offered by the U.S. Army, Navy, and Air Force on many college campuses.

rolling admissions
Applications for admission are evaluated upon receipt and the applicant is immediately notified of the admissions decision.

Scholastic Aptitude Test
A standardized test offered by the College Board.

Test of Standard Written English
A 30-minute test that is administered with the SAT and consists of multiple-choice questions to evaluate a student's ability to recognize standard written English.

TOEFL
The Test of English as a Foreign Language, for non-native speakers of English is used to determine a students ability to write and speak English.

university
A large educational institution which has a number of divisions, including graduate and professional schools.

waiting list
A list of students who were not initially accepted by the institution but who will be accepted at a later date if space becomes available.

* The definitions above were complied from a number of reference sources including *The ABC's of College Planning and Peterson's Guide to College Admissions*.

A Suggested Booklist

.Webster's New Universal Unabridged Dictionary

.Black Awakening in Capitalist America -- Robert L. Allen, Doubleday

.How Capitalism Underdeveloped Black America -- Manning Marable, South End Press

.Black Men, Obsolete, Single, Dangerous -- Haki R. Madhabuti, Third World Press

.Black Power and the Garvey Movement -- Theodore Vincent, The Ramparts Press

.An A B C of Color -- W.E.B. DuBois, International Publishers

.They Came Before Columbus: The African Presence in Ancient America -- Ivan Van Sertima, Random House

.African Presence in Early America -- Ivan Van Sertima, The Journal of African Civilizations Ltd.

.Before the Mayflower: A History of the Negro in America 1619 - 1964 --Lerone Bennett, a Pelican Book

.Confrontation Black and White -- Lerone Bennett, a Pelican Book

.The Challenge of Blackness -- Lerone Bennett, Johnson Publishing Co.

.Precolonial Black Africa -- Cheik Anta Diop, Lawrence Hill & Co.

.Great African Thinkers -- Cheik Anta Diop, Transaction Books

.The African Origin of Civilization, Myth or Reality--Cheik Anta Diop, Lawrence Hill & Co.

.The World and Africa -- W.E.B. DuBois, International Publishers

.The African Slave Trade: Precolonial History 1450-1850 -- Basil Davidson, Atlantic Little Brown

.The African Past -- Basil Davidson, Grossett's Universal Library

.White Over Black: American Attitudes Toward the Negro 1550 - 1812, Winthrop D. Jordan

.Soledad Brother -- George Jackson, Bantam

.Blood in My Eye -- George Jackson, Bantam

.The Choice: The Issue of Black Survival in America-- Sam Yette, A Berkley Medallion Book

.In Red and Black -- Eugene D. Genovese, Vintage

.Message to the Black Man -- Elijah Muhammad, Hakim's Publications

.The Autobiography of Malcolm X -- Malcolm X and Alex Haley, Ballentine Books

.Rasta and Resistance, From Marcus Garvey to Walter Rodney -- H. Campbell, Africa World Press

.The Mis-Education of the Negro -- Carter G. Woodson, AMS Press

.World's Great Men of Color, J.A. Rogers, The MacMillan Co.

.The Ideological Origins of the American Revolution--Bernard Bailyn, A Harvard Paperback

.The Protocols of the Meetings of the Learned Elders of Zion -- translated by Victor E. Marsden

.The Golden Age of Black Nationalism 1850 -1925--Wilson Jeremiah Moses, Oxford University Press

.The White Use of Blacks in America -- Dan Lacy, Atheneum

.The Negro's Image in the South: The Anatomy of White Supremacy -- Claude Nolen, University of Kentucky Press

.The Power Elite -- C. Wright Mills, Oxford University Press

.Capitalism & Slavery -- Eric Williams, Capricorn Books

.Parting the Waters -- Taylor Branch, Simon and Schuster

.The State Against Blacks -- Walter E. Williams, McGraw Hill Book Co.

.The Voice of Black America -- Philip S. Foner, Simon & Schuster

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. . . Pertinent Quotes . . .

C.L.R. James
from *Stolen Legacy*

Justinian the Roman Emperor abolished the temples and schools of philosophy that is another name for the Egyptian Mysteries which the Greeks claimed as their product, and on account of which, they have been falsely praised and honored for centuries by the world, as its greatest philosophers and thinkers. This contribution to civilization was really and truly made by the Egyptians and the African continent, but not by the Greeks or the European continent.

Cheik Anta Diop
from *The African Origin of Civilization*

On the History of Humanity . . .

Only a loyal, determined struggle to destroy cultural aggression and bring out the truth, whatever it may be, is revolutionary and consonant with real progress; it is the only approach which opens on to the universal. Humanitarian declarations are not called for and add nothing to real progress.

On European Egyptologists . . .

The birth of Egyptology was thus marked by the need to destroy the memory of a Negro Egypt at any cost and in all minds.

On Humanity . . .

Practically everyone agrees that until the fourth glacial epoch, flat-nosed Negroids were the only humans. . . . It was probably not until the fourth glaciation, which lasted 100,000 years, that the differentiation of the Negroid race into distinct races occurred, following a long period of adaptation by the fraction isolated and imprisoned by

the ice: narrowing of the nostrils, depigmentation of the skin and of the pupils of the eyes.

Martin Bernal
from *Black Athena*

On Origins of Greek Language . . .

It is generally agreed that the Greek language was formed during the 17th and 16th centuries BC. Its Indo-European structure and basic lexicon are combined with a non-Indo-European vocabulary of sophistication. I am convinced that much of the latter can be plausibly derived from Egyptian and West Semitic. This would fit very well with a long period of domination by Egypto-Semitic conquerors.

On Keeping Blacks in Their Place . . .

. . .after the rise of black slavery and racism, European thinkers were concerned to keep black Africans as far as possible from European civilization.

COMPETITIVE COLLEGE

COUNSELOR REVIEW OF FRESHMAN APPLICATION

BASIC INFORMATION

* INTENDED MAJOR
* RANK IN CLASS
* TRANSCRIPT REVIEW
* STANDARDIZED TEST SCORES

ADDITIVE INFORMATION

* COMMUNITY AND SCHOOL ACTIVITIES
* HONORS, AWARDS, LEADERSHIP
* COUNSELOR/TEACHERS RECOMMENDATIONS
* ESSAY
* PERSONAL INTERVIEW

DO's and DON'TS in Filing out an Application

DO'S

-type or write application form neatly

-make a copy of the application and answer questions on that form first

-show your rough draft to your counselor or teacher to review your responses for errors

-answer all the questions asked

-provide supplementary information if possible

DON'TS

-omit questions

-boast

-cross out

-complete application in pencil

-submit application after published deadline

INTERVIEWS/CAMPUS VISIT

This phase of the college search process is important because it allows you to experience the campus first hand.

To plan a visit to a particular college you should call or write ahead to the respective college giving the institution a minimum of two weeks notice. There is no best time to visit a campus but some bad times include:

Vacation time (no students on campus)

Final examination time

Big Weekends (homecoming)

The advantage of sitting for an interview is that it gives you an opportunity to share information about yourself that might not be visible on paper. Additionally you can learn more about the college and decide if this is the type of environment you would like to spend the next four years of your like at. *Remember the interview is an opportunity to share information about yourself.*

How to prepare for the campus interview:

* Request a campus map and printed literature about the college to be reviewed prior to your visiting the campus.
* Prepare a list of questions to asked the Admissions Representative.
* Bring an unofficial transcript with you.
* Try to arrive on campus before your scheduled appointment and walk around the campus on your own prior to your appointment.

How is the interview used by the college?

* Some colleges require an interview.
* At some colleges is encouraged but not required.
* A number of schools do not grant interviews at all.

The interview is a positive attribute in the admissions process because it allows the college to learn more about the individual applicant that might not be visible on their application form. Often time if you are a borderline candidate and have a positive interview is can tip the scales regarding your admission to a specific college.

The types of questions usually asked are open ended so you can relate some information about yourself to the interviewer. The questions usually fall into the following categories:

* Why do you want to go to college?

* Why did you apply to xyz college?

* What are your career goals?

* How did you do academically in school?

* What do you do in your leisure time?

* How would you describe yourself?

There is no right or wrong answer to the above questions but it helps if you have given these questions some thought prior to answering.

If a college does not grant individual interviews they will often times have group information sessions where you can learn more about the particular school and have some of your questions answered.

ADMISSIONS TERMINOLOGY*

achievement test
A test designed to measure learned knowledge, the test can be offered to high school students in various subject areas.

ACT
A standardized admissions test administered by the American College Testing Program that is required by some colleges for admissions.

advanced placement
Credit granted on the college level for work completed in high school.

applicant pool
The total number of students who are applying to a given college or university in a particular year.

ATP
The Admissions Testing Program is a division of the College Board; their tests include the SAT, Achievement Tests, and Advanced Placement tests.

candidate notification date
The date by which students must notify each college that has accepted them whether or not they plan to attend that college in the fall.

Carnegie Unit
A standard unit of course work in high school; 1 Carnegie Unit is equivalent to a total of 120 hours of study in a subject area.

class rank
An indication of a student's approximate standing in his or her high school graduating class.

college
An individual institution that offers undergraduate education or an educational division of a larger university, such as a College of Arts and Sciences. Usually when used "college" refers to any undergraduate degree-granting institution.

College-Level Examination Program (CLEP)
A battery of tests offered by the College Board that many colleges accept as credit toward a degree even thought the person taking the test may not have gained their knowledge in a formal educational program.

BEST COPY AVAILABLE

concurrent enrollment
Enrollment in college-level courses while a student is still in high school.

consortium
A group of colleges that have joined to offer certain advantages to themselves and their students.

cooperative education
A program that enables a student to alternate periods of full-time study with full-time work. In most such programs, it takes five years to earn a bachelor's degree.

deferred entrance
An admissions plan that allows accepted students to postpone their college entrance date.

early action
An admissions option that allows students to learn of the decision on their application before the standard April notification date. Early action is distinguished from early decision because the student is not required to accept admission or withdraw other applications if accepted.

early admission
A program in which a college accepts high school students to begin college work before they graduate from high school.

early decision
A plan in which students apply in November and learn of their admissions decision prior to Christmas. This plan is only recommended for students who have a strong academic profile and are applying to their first choice institution.

early evaluation
A policy under which applicants are given a preliminary indication by a college of what their chances of being admitted are.

enrollment deposit
A non-refundable deposit required of students accepted to a college to reserve a space in the entering class.

general education requirements
Colleges may require students to take a number of courses or credits in a particular field such as the humanities, social sciences, or natural sciences/mathematics.

matriculation
Enrollment at a college or university to begin work toward an academic degree.

open admissions
A policy that allows for almost all applicants for admissions to be accepted, without regard to traditional qualifying criteria.

INDIANA URBAN LEAGUE
FAMILY MATH PROGRAM
PROGRAM MODEL 3
Parental Involvement Parent Education

PROGRAM MODEL 3 PARENTAL INVOLVEMENT PARENT EDUCATION

FAMILY MATH PROGRAM - INDIANAPOLIS, INDIANA

In 1985, the Indianapolis, Indiana Urban League adopted the Urban League's National Education Initiative as its number one program priority. The affiliate chose to focus on: parental involvement, enrichment experiences for African American students in math and science, and increasing African American enrollment in post-secondary institutions. The Indianapolis Urban League has pursued its goals through the implementation of innovative programming. In 1986, the Indianapolis Urban League obtained a grant from the National Science Foundation to implement a two-year FAMILY MATH program.

PROGRAM DESCRIPTION/GOALS

FAMILY MATH helps parents and children enjoy mathematics together. FAMILY MATH was developed by the University of California, Berkeley's Lawrence Hall of Science as part of their EQUALS program. EQUALS assists classroom teachers in improving mathematics teaching, and helps students, especially female and minority students, succeed in mathematics. After years of working with teachers to improve mathematics teaching and learning, EQUALS staff learned that many parents wanted to help their children at home but were frustrated because they did not know enough about mathematics or their children's math program to help. FAMILY MATH is the result. It is a separate program that focuses entirely on parents and children learning math together to develop problem solving skills and to build understanding of mathematics by using manipulative or "hands-on" materials.

FAMILY MATH is not a tutorial or after-school enrichment program for children. It is not remediation though it may prevent the need for remedial courses. FAMILY MATH is a format enabling parents and children to learn and enjoy mathematics together.

Program Goals

The FAMILY MATH program's primary goal is to demystify mathematics for parents and students by:

- Providing an overview of the mathematics topics taught in school, i.e., arithmetic, geometry, probability and statistics, measurement, estimation, calculators, computers, logical thinking and careers. Topics are grouped by grade levels such as kindergarten-3, 4-6, or 6-8;
- Demonstrating how these topics relate to each other;
- Teaching activities that build understanding of mathematical concepts with manipulative materials;
- Providing an opportunity to develop problem-solving skills in a cooperative, non-threatening atmosphere;
- Relating the learning of mathematics to future studies and careers by providing information on:
  - what you get to do if you learn math,
  - trade and college entrance requirements,
  - how a good math background can open the door to more job opportunities;

- Forging a union between home and school by opening discussions of school expectations in mathematics;
- Discussing how to exchange information with the school and teachers, and by providing activities and material that can be used at home to reinforce the mathematics taught at school;

- Improving attitudes toward mathematics by demonstrating:
  - the relevance of mathematics to future studies and jobs, and
  - that learning mathematics can be fun and enjoyable.

Targeting FAMILY MATH

When the FAMILY MATH program was implemented in 1986, the population initially targeted for the program was the African American female-headed household because this was where a substantial number of school-age children were found. Furthermore, heads of these households were overwhelmingly low income, recipients of welfare, unemployed or under-employed. Most had not graduated from high school. Additionally, some of the children in these households were bused thirty miles or more to suburban all white school districts as a part of a court ordered desegregation plan. As a result of the travel distances and lack of communication between parents and teachers, there was minimal parental involvement in their children's education.

Implementing FAMILY MATH

The Indianapolis Urban League developed an adaptation of the FAMILY MATH program. The adaptation followed these recommended steps for program implementation:

1. Decide what grade level will be taught and who will teach them. The League hired a professor from Ball State University to conduct the initial training for the program, and concentrated on grades K-3.

2. Determine a schedule for FAMILY MATH training sessions. Early evening (6 to 8 p.m.) has worked best for the Indianapolis Urban League and Saturday morning sessions were the best alternative.

3. Determine the location of the classes. If possible, FAMILY MATH classes should be conducted outside of a classroom setting. The Indianapolis Urban League conducted the first training at a church. The affiliate found that many parents within the target population left school unsuccessfully and therefore felt a great deal of anxiety with returning to the classroom. By holding classes in churches, recreation centers, in parks and, in some cases, private residences, some of the tension and anxiety that parents and children felt was relieved.

4. In the first year of the FAMILY MATH program, the Indianapolis Urban League recruited for four months by sending notices to parents in targeted school districts through the schools (a sample recruitment brochure appears in the Resource section). The Indianapolis Public Schools recruited teachers through in-service training programs. The Urban League's Education Director appeared on local television shows to publicize the program. The affiliate also wrote and disseminated Public Service Announcements to television and radio stations in Indianapolis. Initially, both parents and teachers were hesitant to enroll in the program. As an incentive, teachers were offered a five hundred dollar stipend for attending fifteen hours of training over five days. Parents received one hundred dollars for attending five two-hour training sessions. Both incentive payments were funding components of the initial proposal. The initial recruitment effort in 1986 was successful in attracting twenty-three people, nineteen parents and four teachers. Today, the program trains approximat

600 parents and teachers annually. Quantitative information on the Indianapolis Urban League initial recruitment efforts appears in the Resource Section for this model.

5. Financial support for a FAMILY MATH program can come from two sources, the participants or underwriters. The Indianapolis Urban League applied for and received a grant from The National Science Foundation for the initial two years of FAMILY MATH. In the third year of the program, Borden, a local foundation, provided funding for year four. In the fifth year of the program, it became part of the Indianapolis Urban League's general fund.

6. Expenses to consider are handouts and materials, rent for meeting space, refreshments and the cost of trainers and support staff. A sample budget from the Indianapolis Urban League detailing annual expenditures can be found in the FAMILY MATH Proposal appearing in the Resource Section.

7. Developing lesson plans for each session should be the next consideration. The FAMILY MATH book provides sample lesson plans and suggested activities appropriate for specific grade levels. These should be used to develop lesson plans while taking into consideration the local school system's math curriculum. A generic FAMILY MATH Lesson Plan has three math activities . A sample lesson plan appears in the Resource Section.

8. Each session should contain an evaluative component. Informal comments, journals, checklists and follow-up discussions with teachers, the children and parents are all excellent ways to determine if FAMILY MATH is achieving stated goals. Evaluation also provides the necessary documentation for funders. An evaluation form from the Indianapolis Urban League appears in the Resources Section.

9. Food can be served before or after the training sessions to promote a nurturing environment. Some groups host Pot Luck Suppers because the two hour training sessions often intrude on the dinner hour. Though the content of the training sessions is the same, each group tends to take on its own personality and creates its own atmosphere for the program.

CURRICULUM DEVELOPMENT AND TRAINING ACTIVITIES

The curriculum combines problem solving skills and "hands-on" activities. Teaching problem solving skills entails understanding the way in which people think about solving problems. Using hands-on material or manipulatives, objects like blocks, beans and toothpicks, helps learners picture and conceptualize problems.

FAMILY MATH Activities

All activities in FAMILY MATH fall within content areas normally covered in mathematics classrooms. There are eight basic concepts that are taught in the FAMILY MATH:

Arithmetic, Number and Operation involves counting, place value, the arithmetic operations (addition, subtraction, multiplication, division), whole numbers, fractions, decimals and percentages.

Geometry deals with recognition and visualization of two- and three-dimensional shapes in space, coordinate graphing, measurement of geometric figures and objects, exploratory trigonometry, and symmetrical relationships.

Measurement focuses on length, area, volume and capacity, mass (weight), temperature, time, and money.

Calculators and Computers deals with the ability to use calculators and computers; understanding of the role that calculators and computers can play as mathematical tools.

Probability and Statistics focuses on collection, organization, tabulation, graphing and interpretation of data. Concepts of probability and use of organized data to make predictions and statistical inferences are also covered.

Patterns, Relations, and Functions deals with recognition of patterns, ability to reproduce and create patterns, concept of function, and coordinate graphing of functions.

Logical Thinking focuses on development of reasoning patterns and strategies to solve problems, use of standard logical terms (that is, and, or, not, if then, all, and some), as well as inductive and deductive reasoning.

The specific content of the FAMILY MATH training is revised annually and is based on the math curriculum of local schools. The program is usually offered to children and parents from kindergarten through eighth grade, although the Indianapolis Urban League has divided participants into four distinct training groups:

Preschool to impact math readiness,

Primary to provide exposure to problem solving and impact attitudes about math,

Junior High school or Middle School to impact attitudes toward math by adding a career activity, and

Secondary to assist in course selection and career selection and planning.

Training For FAMILY MATH

In each training class, four to six activities are presented for parents and children to do together. After the presentation and joint activity, the parents and children talk together as a group discussing how they solved the problem and how the activity will help with school mathematics. Families are given the in-class demonstration as well as other activities to take with them to ensure that learning continues at home. Indianapolis Urban League staff have found that after several training sessions it is not unusual for parents to bring in new books and activities they have found to share with other members of the class.

The following is an example of a training exercise:

Egg Carton Numbers

Tools: A dozen egg carton and 78 dried beans

Why: To gain experience with numbers

How: Label the section of the egg carton with the numbers 1 through 12. Give your-child 78 beans (or other small objects) and ask him/her to count them into the section of the carton, according to the numbers. There should be one bean in the section marked "1," two beans in "2," and so on. If the counting is accurate, the child will use exactly 78 beans. Ask your child, "Can you explain why?"

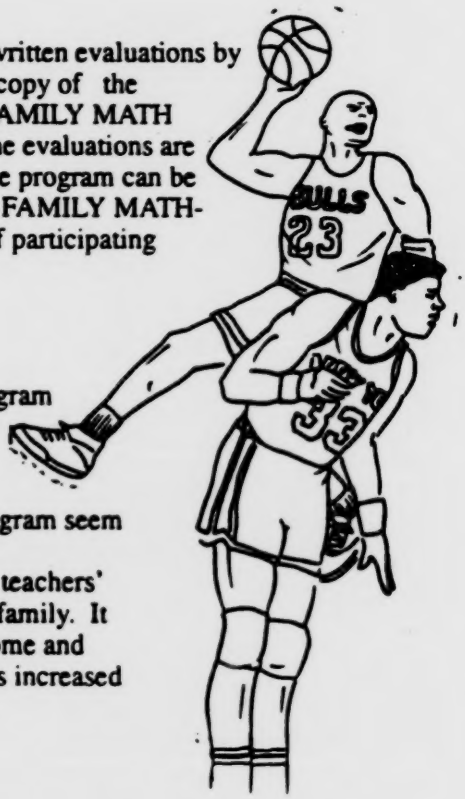
Examples of FAMILY MATH exercises appear in the Resource Section of this Model Program.

Adding Culturally Relevant Material To FAMILY MATH

The Indianapolis Urban League seeks to include information of particular relevance to its African American audience and references to popular culture. For example, Michael Jordan's free throw percentage may be used to teach the concept of probability. The instructors are encouraged to make lessons interesting and to include examples from everyday life.

PROGRAM EVALUATION AND IMPACT

The Indianapolis Urban League uses interviews and written evaluations by participants to evaluate the FAMILY MATH program. A copy of the evaluation form used in the Indianapolis Urban League FAMILY MATH program is included in the Resource Section. However, the evaluations are anecdotal versus empirical. Nonetheless, the growth of the program can be demonstrated empirically. In 1989, 300 families attended FAMILY MATH-classes. During the 1991/92 academic year, the number of participating families increased to 600.



PROGRAM EFFECTIVENESS

The Indianapolis Urban League FAMILY MATH program has had the greatest impact on parents and children at the kindergarten through third grade level. Within this particular group, the desired outcome of the program as well as the aforementioned intrinsic benefits of the program seem more enhanced.

The FAMILY MATH program has helped to increase teachers' understanding and appreciation of the African American family. It has also empowered African American parents in both home and school settings. Enrollment in high level math courses has increased and attendance at all grade levels has improved.

PROGRAM SUPPORT

The first two years of the Indianapolis Urban League FAMILY MATH program were funded by The National Science Foundation through the University of California, Berkeley. In years three and four, the Indianapolis Urban League received funding from the Borden Foundation for another two years. In year five, the FAMILY MATH program became part of the Indianapolis Urban League's general fund as a coordinated effort with the University of Indiana and the University's Upward BoundProgram.

Staffing FAMILY MATH

The Director of Education for the Indianapolis Urban League administers the FAMILY MATH program. In addition, a Math Consultant is utilized as a trainer and also to provide an ongoing evaluation of the program. The affiliate also enlists the support of math/science instructors and university faculty as consultants. Educators trained in FAMILY MATH techniques are paid a stipend to work with the program. The Indianapolis Urban League provides funding to cover the cost of the on-site coordinator, local travel, postage, meeting rooms and administrative overhead for the program.

Implementing A FAMILY MATH Program

The Director of Education of the Indianapolis Urban League, who is also the Program Director for FAMILY MATH, suggests that affiliates interested in the program "step outside traditional beliefs" when introducing FAMILY MATH. Indianapolis Urban League staff were surprised and encouraged by the far-reaching results of the FAMILY MATH program.

The range of activities offered in the FAMILY MATH program is broad enough to accommodate any Urban League affiliate's level of financial and staff resources. The positive-results experienced by the Parents, teachers and the children were, as expressed by the Indianapolis Urban League Director of Education, "unbelievable!"

The Unexpected Benefit

Indianapolis Urban League staff expected that the level of comfort and confidence related to mathematics experienced by participants would increase after training in FAMILY MATH. Written evaluations of the program by parents indicate pos itive attitudinal changes about math. There were also positive attitudinal changes about their children's ability and their own ability to understand and master this "hard" subject. Students who have participated in FAMILY MATH report improved math performance, increased enrollment in higher level math courses and improved standardized test scores.

The most notable effects of the program were not anticipated. They included enhanced self-esteem of both parents and children, improved parent/child relationships, and increased confidence of parents to assist their children academically and develop meaningful home/school partnerships. Trainers noted the development of leadership, organizational and networking skills in parents and an increased understanding and appreciation of African American parents by teachers.

As their confidence grew, the parents no longer looked to the teachers and trainers to organize the FAMILY MATH sessions. Instead, they determined which parent would lead the meetings, how the meeting would be structured and what refreshments to provide. In essence, parents took the-initiative to control the areas of the program they could. They did not look to the Indianapolis Urban League staff and tutors to provide everything.

Another unexpected outcome was the number of parents that requested referrals to GED and college preparatory programs. The confidence and self-esteem that many parents gained in the FAMILY MATH classes also inspired them to continue their own education.

RESOURCE MATERIALS
for
MODEL 3
Indianapolis Urban League
Family Math Project

RESOURCE MATERIALS
for
MODEL 3

Indiana Urban League
Family Math

1. **FAMILY MATH Proposal.**

2. **"What is FAMILY MATH?" (Program summary and sample exercises for participants).**

3. **Summary of Program Activities**

4. **FAMILY MATH Activities Booklet.**

5. **Sample Lesson Plan for FAMILY MATH.**

INDIANAPOLIS URBAN LEAGUE FAMILY MATH PROGRAM

REPORT OF FIRST YEAR GRANT

&

PROPOSAL FOR SECOND YEAR GRANT

The Indianapolis Urban League conducted its first year of Family Math Programming from December, 1986 through October, 1987. This document constitutes a report of the first year program (with the exception of the final workshop to be held at the end of October), and our plan for the second year program. After the October workshop, a supplemental report will be filed, which together with this will constitute our final report.

General comments on how well the Family Math Program went must be looked at in terms of cycle one, cycle two, and overall comments. Cycle one accomplished several things: 1) there was active participation of 457 parents and children; 2) the math proficiency of at least the 22 parents who were trained as teachers increased and this is sure to benefit their own children; 3) the attitudes of parents involved in Family Math became more positive; 4) there was some out-of-school reinforcement for some families in Title I programs; and 5) parents gained increased confidence in their leadership and organization skills. Cycle one also had its difficulties. There was a need for an on-site math consultant who could provide necessary technical assistance; the three training sessions were not enough to build the level of confidence necessary for parents to teach classes; and there was difficulty in reaching the desired number of family participants.

Because IUL's Program evolved into a model which was different from other Family Math sites, and it was obvious the number of family participants anticipated by the Equals staff would not be met, it was suggested by Equals staff that a different model be used for cycle two. Hense, cycle two went to greater use of teachers and incorporation into in-school programming. Our experience in cycle two was extremely disappointing. IUL did not have control over Family Math classes which were held. The large number of sites and incorporation in school-system programming made it impossible to manage. Consequently, we were unable to verify that more than 40% of the anticipated classes were held.

Generally, Family Math has been a good program for the Indianapolis Urban League. It has given us a way to demonstrate, concretely, our concerns and involvement in education. It was a perfect project for our parental involvement focus which has been going on for about six years. Unfortunately, communication problems between IUL and Equals staff prevented us from being more in line with Equals' expectations. There was also some lack of clarity in evaluation responsibilities which resulted in lack of adequate data collection for evaluation purposes. We have, however, learned from our first year experience, lessons which will enable us to operate a more effective and efficient Family Math Program the second year.

IUL did not use all of its grant funds in the two cycles. It is our intent to use the balance of the grant funds in a session for families who participated in Family Math sessions to make some of the "tools" for exercises, teach more exercises for future use, and make the items which will be necessary for in-service training in the second year. This session is scheduled to take place during the last week of October.

For the second year, the Indianapolis League plans to conduct two Family Math sites during the same time frame.

	Site I	Site II
Recruitment	October	October
Training	November	November
Family Math Classes	Jan - March	Jan - March

It is our intent to use a refined version of the 1st cycle from year one, using a 20/5 parent/teacher ratio. We will conduct 4 or 5 classes, (depending upon family size) using teacher teams, in one setting which is community based. Our training will consist of five three-hour sessions, a couple of "practice" class sessions, and a "make it, take it" workshop. We will have a math consultant provide technical assistance to the Family Math classes. Those who teach a full six-class cycle will receive a stipend at the end of the cycle.

For this second year IUL will work with two areas of the city. Concerned Parents & Families of Washington Township is a group we have been working with since inception of the group. They have expressed a great deal of interest in Family Math and will be one of our target areas. The second area will be one of the townships involved in court-ordered desegregation. Determination of the second target area will be based upon which area appears to have more commitment and greater likelihood of success. A decision will be made by the end of October.

dw

WHAT IS FAMILY MATH?

FAMILY MATH is a way for parents and children to enjoy doing mathematics together. Many parents would like to help their children with math but don't know how to begin or what to do.

A FAMILY MATH course, taught by a teacher, parent, retired person, or community worker, in a school, church, community center, or home gives parents and children (Kindergarten through 8th grade) opportunities to develop problem-solving skills and to build an understanding of math concepts with "hands-on" materials.

By problem-solving skills we mean ways in which people think about how to solve a problem using strategies like looking for patterns, drawing a picture, working with a partner, or eliminating possibilities. Having a supply of strategies helps eliminate the frustration of not knowing how or where to begin solving a problem. The more strategies you have, the more confident you become, the more willing you are to tackle new problems, and the better problem solver you become. By "hands-on" materials, we mean concrete objects--like blocks, beans, toothpicks--that are used to help learners picture and conceptualize problems.

FAMILY MATH courses are usually taught by grade levels (K-2; 3-4; 5-6; 7-9), although variations occur. The courses meet for about two hours from six to eight weeks. Topics included in most classes are arithmetic, geometry, probability and statistics, measurement, estimation, and logical thinking--concepts covered throughout the K-8 mathematics curriculum. As students progress through mathematics, it is essential that they develop an ability to visualize spatial relationships (geometry), to approximate (estimation), to interpret data (probability and statistics), and to reason mathematically (logical thinking). These topics are inherently interesting and often can motivate a student who has had little previous interest or success in mathematics. Parents in FAMILY MATH classes are also given overviews of the mathematics topics covered at their children's grade levels and explanations of how the FAMILY MATH activities relate to these topics.

A 17-minute film, showing scenes from several FAMILY MATH classes and the kinds of activities parents and children do together.

MATH USED IN JOBS — RANKING SHEET

Ranking the 10 math skills according to how many people in the following occupations said they used the skill. Place number 1 by the math skill used most often, number 2 by the skill used second most frequently, and so on through 10, which is the math used the least.

Use of	Your Answer	Actual Answer	Difference	
fractions				
basic geometric concepts				
calculators				
formulas				
decimals				
averaging				
ratio and proportion				
estimation				
per cent				Total Score
statistical graphs				

Occupations

Accountant
Accounting Systems Analyst
Administrator: Shopping Mall
Advertising Agent
Airline Passenger Service Agent
Airplane Pilot
Air Traffic Controller
Appraiser (Land)
Architect
Artist (Graphic)
Attorney
Auditor
Auto Mechanic
Bank Teller
Biologist (Environmental)
Carpenter
Carpet Cleaner
Cartographer
Chiropractor
Computer Systems Engineer
Contractor (General)
Controller (Hospital)
Counter Clerk (Building Materials)
Data Processor
Dentist
Dietician
Doctor (G.P.)
Drafter
Economist
Electrician
Electrical Engineer
Electronic Technician
(Civil) Engineer
(Electronics) Engineer
(Industrial) Engineer
(Petroleum) Engineer
Environmental Analyst
Farm Advisor
Fire Prevention Officer
Fire Fighter
Forestry Land Manager
Forestry Recreation Manager
Geologist (Environmental)
Highway Patrol Officer
Hydrologist
Income Tax Preparer
Insurance Agent
Insurance Claims Supervisor
Interior Decorator
Investment Counselor
Landscape Architect
Librarian
Machinist
Manager: Appliance Store
Manager: Temp. Employment Service
Marketing Rep. (Computers)
Masonry Contractor
Medical Lab Technician
Meteorologist
Motorcycle Sales and Repair
Navigator
Newspaper: Circulation
Newspaper: Circulation
Newspaper: Production
Newspaper: Reporter
Nurse Oceanographer (Biological)
Optician
Orthopedic Surgeon
Painting Contractor
Payroll Supervisor
Personnel Administrator
Pharmacist
Photographer
Physical Therapist
Plumber
Police Officer
Political Campaign Manager
Printer
Psychologist (Experimental)
Publishing: Order Manager
Publishing: Production Manager
Purchasing Agent
Radio Technician
Real Estate Agent
Roofer
Savings Counselor
Sheet Metal/Heating Specialist
Social Worker
Stock Broker
Surveyor
Technical Researcher
Title Insurance Officer
Travel Agent
T.V. Repair Technician
Urban Planner
Veterinarian
Waitress/Waiter
Wastewater Treatment Operator

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To score Take the absolute value of the difference between the correct ranking and the one the group has given; that is, subtract then drop any negative signs.

Example:

	group answer	correct answer	difference
Fractions	2	5	3

Add all the differences for a total score. The lower the score, the more accurate the ranking.

Discussion: Ask whether any individual had a lower score than the group score. Discuss the dynamics within the group. Discuss the accrual occupations and how the math skills may be used in each occupation.

Extensions:

Have students interview their parents or people in various careers to find out what type of math they use in their field. Students can then make a similar activity based on the information they collected.

MATH USED IN JOBS • ANSWERS

Math Skill	% of the 100 jobs that use this skill	Rank
decimals	100	1
calculators	98	2
percent	97	3
estimation	89	4
fractions	88	5
averaging	83	6
ratio and proportion	77	7
statistical	74	8
formulas	68	9
basic geometric concepts	63	10

HOW CLOSE CAN YOU GET?

2-5 players
Material: paper and pencil, deck of cards

Remove the 10's and picture cards from the deck.
Deal each player 4 cards face down.
Turn up two more cards: the first card goes in the 10's place and the second in the 1's to form the target number. (For example, a six, then an ace makes 61.)

Now the players turn up their 4 cards and arrange them into 2 two-digit numbers, so that when they add (or subtract) their 2 numbers the result will be as close to the target number as possible.

To score, each player finds out how close they are to the target number by subtracting their result from the target number or vice versa.

For example, if the target number is 61 and a player has an ace, 5, 3, 9, she could make a 91 - 35 = 56. Her score would be 61 - 56 = 5 for that round.

For the next round, turn up 2 new cards from the deck to form the target number.
Players use their same 4 cards and proceed as above.
They add Round 2 score to Round 1.

Play goes five rounds. The player with the lowest score wins.

Note: Players can help each other and work toward a low group score.

Extension: Try a 3-digit target number and 6 cards for each player.

This activity was developed by Diane Resek.

INDIANAPOLIS URBAN LEAGUE FAMILY MATH
PROGRAM ACTIVITIES
(NOVEMBER 1, 1986 - OCTOBER 31, 1987)

The Indianapolis Urban League (IUL) conducted recruitment activities from November 10, 1986 until February 24, 1987. During this period notices were sent to parents (potential participants for in-service training). A second follow-up notice was sent and a follow-up call was made to potential participants. Recruitment, for the February in-service training sessions was conducted by Indianapolis Public Schools (IPS) personnel. IUL had access to three public service television shows that were suitable for FAMILY MATH recruitment. Irma Boyett appeared on each of these shows prior to the initiation of the FAMILY MATH program. Twenty-eight calls were received by the IUL following the television shows. The calls focused upon interest in participation in the FAMILY MATH program. Public service announcements were written and disseminated to all appropriate television and radio stations in the Indianapolis area. From the interest expressed after the television spots, a more effective recruitment procedure may include recruiting participants who are interested in math development rather than targeting specific school districts. There appears to be high interest in FAMILY MATH among groups not targeted for first year participation. Structured and defined grant requirements limited the number of participants in each in-service training session. Now that our working knowledge of FAMILY MATH has increased we feel comfortable expanding recruitment.

An orientation session for the first in-service group was conducted prior to the training to insure that parent concerns were heard and addressed.

Dr. Charles Payne of Ball State University conducted in-service training on December 16, 17, 18, 1986 from 4:00 p.m. to 8:00 p.m. at the Broadway United Methodist Church (BUMC), 509 East 29th Street. Twenty-three people completed training (nineteen parents and four teachers). In-service training was provided for a second group on February 24, 25, 26, 1987 by Dr. Payne. There were twenty-six people trained in the February session. This group consisted of twenty teachers and six parents. Training for the second group was also held at the BUMC from 4:00 p.m. to 8:00 p.m.

Group one also participated in an organization/recruitment session designed to aid parents in implementation of FAMILY MATH classes. Nineteen people attended this session and were divided into three group consisting of approximately five people per group to provide team teaching of FAMILY MATH classes. In each team a leader was identified to coordinate team activities. These three teams conducted six FAMILY MATH classes at BUMC. Four people who attended the organizational/recruitment session were unable to participate in the team approach and held individual classes at various locations. Group two, consisting of primarily teachers, organized FAMILY MATH classes at their individual schools. However, of the twenty teachers who completed in-service training, representing ten schools, only four schools conducted FAMILY MATH classes.

Forty-nine FAMILY MATH classes were held by those who received in-service training in December and February. Six group (team) and forty-four individual sessions were held. The number of people (adults and children) who attended FAMILY MATH classes was six-hundred and forty (640) which represents two hundred and thirty five (235) identifiable families.

A future directional need for the FAMILY MATH program (Indianapolis site) is to objectively quantify background issues i.e. subject and contextual variables that predispose one to success or failure in the program. IUL would also like to objectively quantify predictor variables. IUL would like to identify 4 to 5 factors in addition to minority status, poor performance and attitudes about math that predispose one to success in the program. A dramatic follow-up study is required and planned. A statistician, Oliver Tzeng Ph.D is going to design a questionnaire to assess many variables. Multivariate analysis (i.e. cluster analysis, factor analysis, etc. will be used to analyze the data from this program year. Once follow-up is complete 2 to 3 variables will be identified which predispose minority families to success with FAMILY MATH goals. Dr. Tzeng will design the questionnaire using Michael Wince Ph.D's evaluation and information gained from key informants. If these variables are identified precise recruitment and outcomes can be expected.

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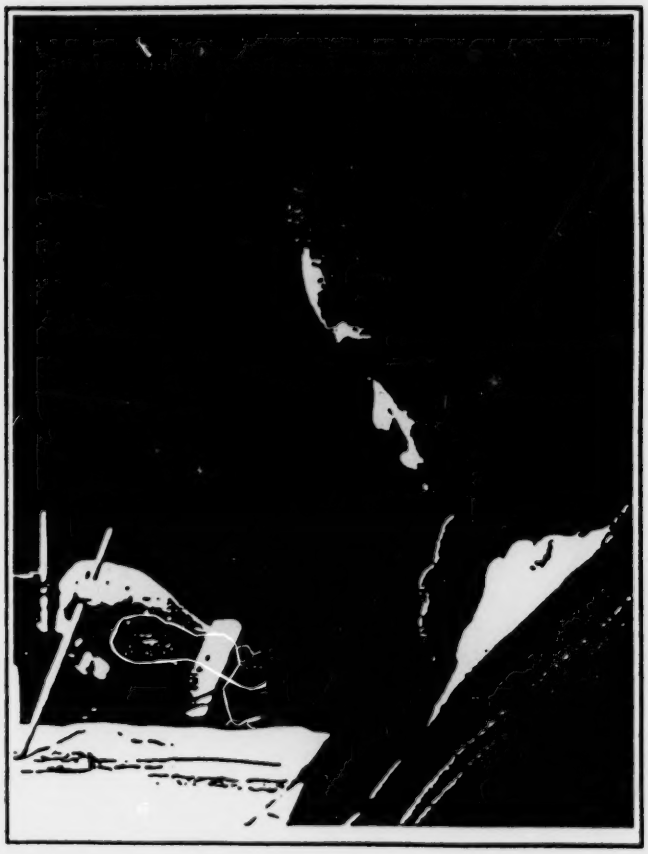
the dissemination of FAMILY MATH information services two purposes. It served an education function, however, it has been used primarily as a recruitment tool. By using the media both print and electronic, newsletters and presentations at the National Urban League Conference we are confident we have increased awareness and interest in participation in the FAMILY MATH program in Indianapolis as well as other cities. Again we need to quantitatively look at this area in the next year. Hopefully we can become more sophisticated at both recruitment and education thus insuring better outcomes.

FAMILY MATH ACTIVITIES



INDIANAPOLIS URBAN LEAGUE

850 NORTH MERIDIAN STREET

INDIANAPOLIS, IN 46204

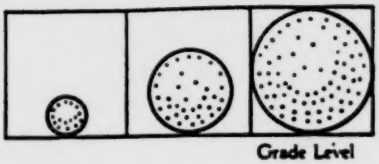
(317) 639 - 9404

CONTACT: IRMA BOYETT

WORKSHOP ACTIVITIES

The following activities were demonstrated during the FAMILY MATH workshop. Practice these activities at home with your family.

Balloon Ride



Grade Level

TOOLS

10 or more toothpicks
Balloon Ride board

A game for
2 players

Why

To practice problem-solving techniques by trying to figure out how to win a variation of the old Chinese game of NIM

How

- Tell the children a story about the hot air balloon coming to town. There is a contest to win a free ride. There are ten ropes holding the balloon to the ground. Two people take turns cutting the ropes. Each person may cut either **one** or **two** ropes. The person who cuts the last rope wins a free ride.
- Put out ten toothpicks on the Balloon Ride board to represent the ropes.
- Players take turns picking up one or two toothpicks at a time.
- No one is allowed to skip a turn.
- The person who takes the last one (or two) toothpicks wins the free ride.

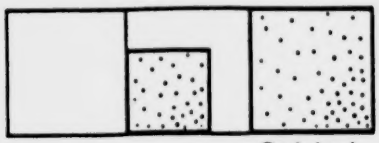
When you and your child begin to see some patterns and possible strategies, see if together you can work out a way to win every time. (Hint: Start with a game that has just a few toothpicks. Who has the best chance of winning? Then add a few more toothpicks. This is called working backward.)

More Ideas

- After you think you have found a way to win, use a larger number of toothpicks—maybe twelve or nineteen.
- You can also change the number of toothpicks that can be picked up—try picking up one, two, or three toothpicks on each turn.
- You may even want to change the rules so that the person who has to pick up the last toothpick is the **loser** instead of the winner.

This activity develops intuitive understanding of subtraction or "take-away." If children can find a strategy to win, it will build a stronger number sense.

Rainbow Logic



Grade Level

TOOLS

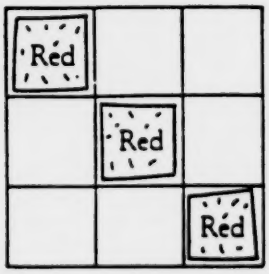
Colored paper squares for each player (4 each of 4 colors)

3×3 and 4×4 grids

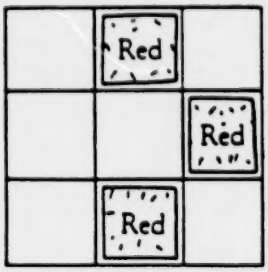
A game for

2 or more players

Patterns like



and



are not allowed.

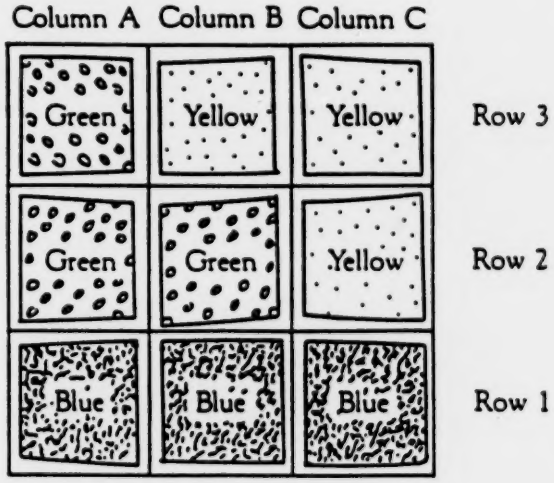
Why

To practice deductive thinking and spatial reasoning

How

- For the first game, a parent should be leader.
- After the first game, any player may become leader.
- The leader prepares a secret 3×3 color grid, using three squares of each color.
- All of the squares of the same color must be connected by at least one full side.

  For example, a secret grid might be

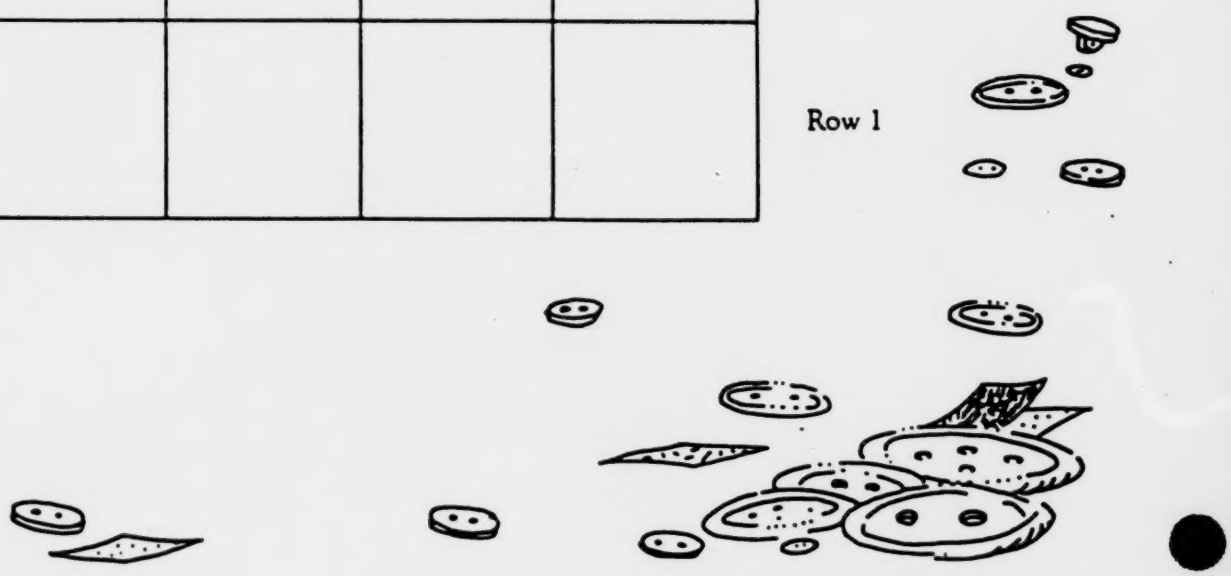


- Clues are given in the following manner:
  - Players ask for the colors in a row or a column (rows are horizontal, columns are vertical.)
  - The leader gives the colors, but not necessarily in order.
- Allow time for the players to discuss what they have learned after each guess before giving a new clue.
- The goal is for the players to be able to give the location of all colors on the grid after as few questions as possible. Each player should use a grid and colored paper squares to keep track of the clues. Squares may be put **beside** the row or column until exact places are determined.
- Let each person be the leader for two games, then let a new person lead, until all have had a chance to lead.
- When everybody is familiar with the game, or for older students, play using a 4×4 grid, with the same rules.

More Ideas

- Either before beginning the game, or after you have played, talk about how many different possible arrangements there are for the three colors. See Pentasquares (page 188) for more discussion.
- For younger children, try a 2×2 grid, or give them the color information in order, so that they can put the colors onto the grid immediately.

Column A	Column B	Column C	Column D	
				Row 4
				Row 3
				Row 2
				Row 1



RAINBOW LOGIC

Column A	Column B	Column C	Column D	
				Row 1
				Row 2
				Row 3
				Row 4

SALARY SCRAMBLE

Can you guess the yearly salaries of an electrician, carpenter, bus driver, secretary, and mechanic? Determine the name and yearly salary of each occupation as described in the clues.

1. Bud Denny makes more money than Ginny Ellis or Sue Chan but less than Angela Martinez.
2. No person works in a trade that starts with the same letter as her/his last name.
3. A carpenter averages less than an electrician and more than a mechanic.
4. Nancy Smith makes $6,968 less than an electrician but $3,016 more than Bud.
5. The secretary makes the least per year, only $10,400.
6. Sue's salary is $4,100 more than a secretary but still $6,820 less than a mechanic.

Sue Chan Bud Denny Ginny Ellis Angela Martinez Nancy Smith

Carpenter Bus Driver Electrician Mechanic Secretary

NAME	OCCUPATION	SALARY

STATION ACTIVITIES

The following activities were displayed during the FAMILY MATH workshop. Practice these activities at home with your family.

Cut-A-Card

Grade Level

TOOLS

Cut-A-Card puzzle
Practice paper, 3"×5"
3"×5" cards
Scissors

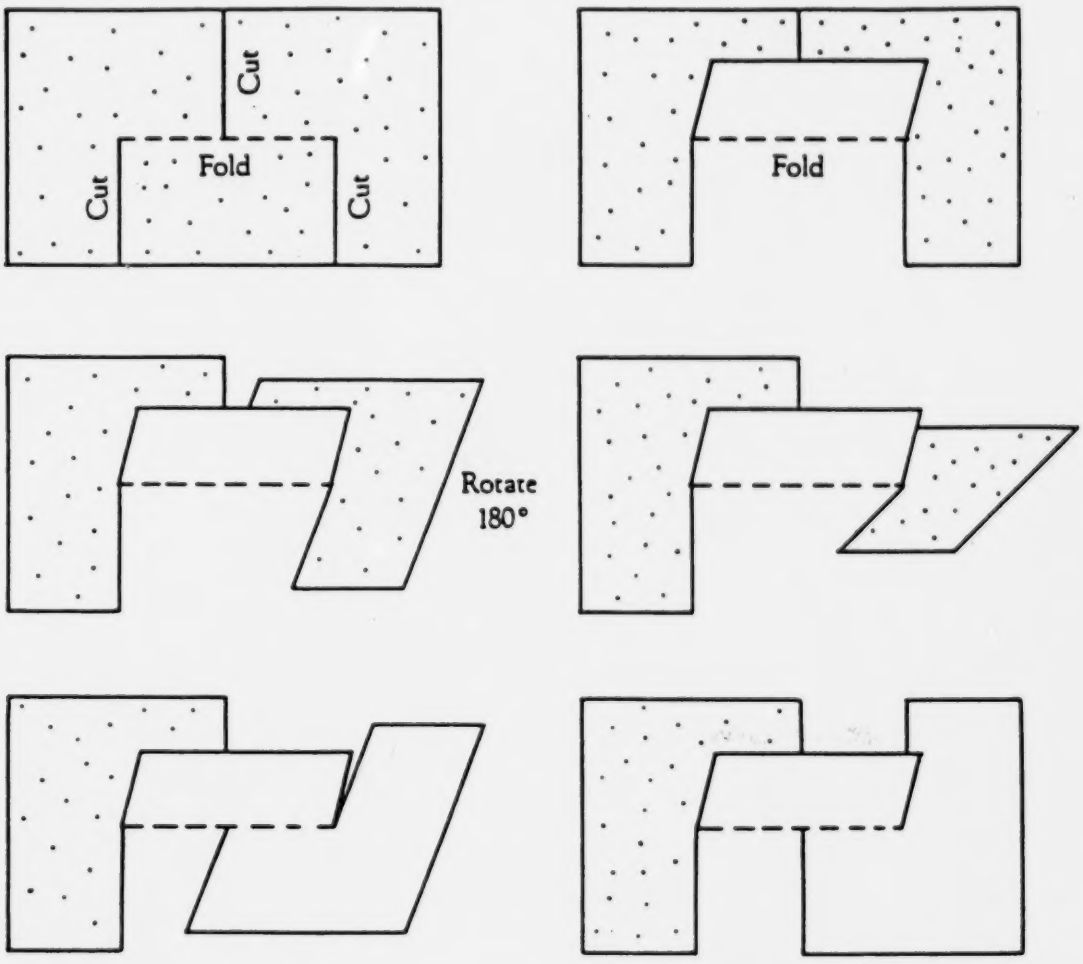
Why

To practice visualizing an object in space, observing the effects of flipping or rotating the object

► *Engineers and others who work in construction or design need to be able to visualize objects and their structure in many ways.* ◄

How

□ Make a Cut-A-Card puzzle by cutting and folding a 3"×5" card as indicated in the sketch.

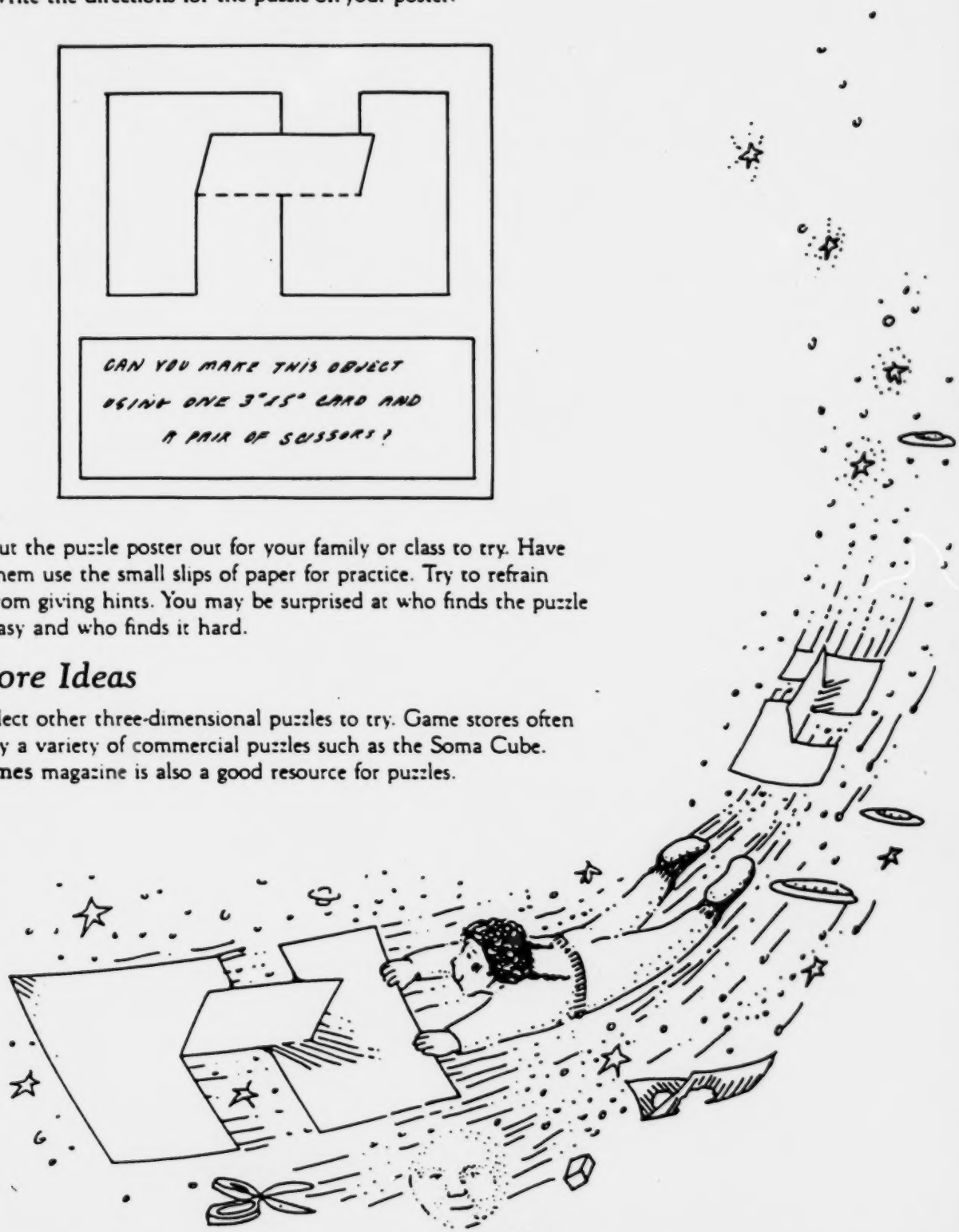


- ☐ Tape this object to a larger card or poster.
- ☐ Write the directions for the puzzle on your poster:

- ☐ Put the puzzle poster out for your family or class to try. Have them use the small slips of paper for practice. Try to refrain from giving hints. You may be surprised at who finds the puzzle easy and who finds it hard.

More Ideas

Collect other three-dimensional puzzles to try. Game stores often carry a variety of commercial puzzles such as the Soma Cube. **Games** magazine is also a good resource for puzzles.



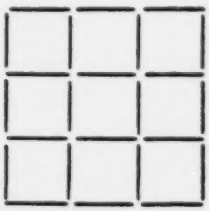
Spatial Activities
Toothpick Puzzles

I. Make this figure with 15 toothpicks.

Try these puzzles:

1. Remove 3 toothpicks and leave 3 squares.
2. Remove 4 toothpicks and leave 3 squares.
3. Remove 5 toothpicks and leave 3 squares.
4. Remove 4 toothpicks and leave 2 squares.
5. *Move* 3 toothpicks and make 4 squares.

I. Make this figure with 24 toothpicks.

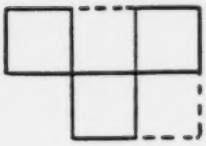


Try these puzzles:

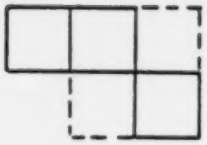
1. Remove 4 toothpicks and leave 5 squares.
2. Remove 8 toothpicks and leave 4 squares.
3. Remove 8 toothpicks and leave 2 squares.
4. Remove 8 toothpicks and leave 3 squares.
5. Remove 6 toothpicks and leave 3 squares.

Solutions to Toothpick problems:

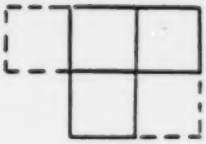
I. 1.



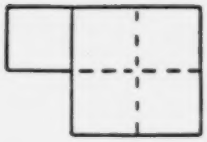
2.



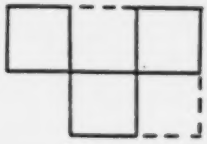
3.



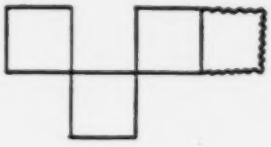
4.

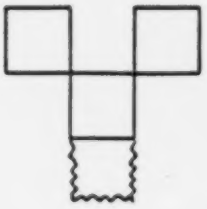


5. Many possible solutions. Pick up these 3:



Use them to form 3 sides of the 4th square. You can do this in several places, for example:





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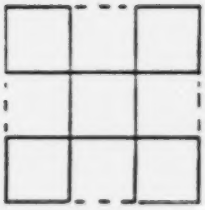

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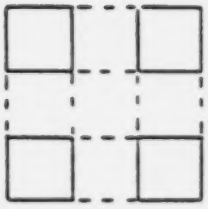

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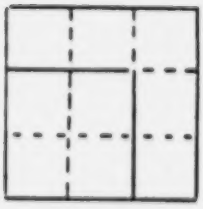
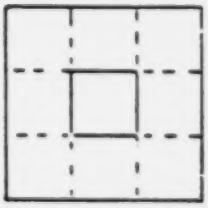


or



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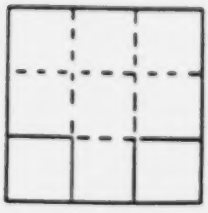

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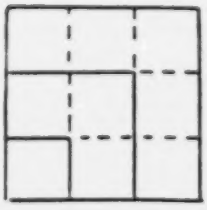
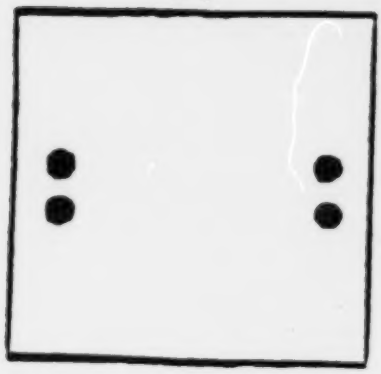


Fold and Punch

Take a square.
Fold it and make <u>one</u> punch, so that you will have one of the following patterns when you open it.

A



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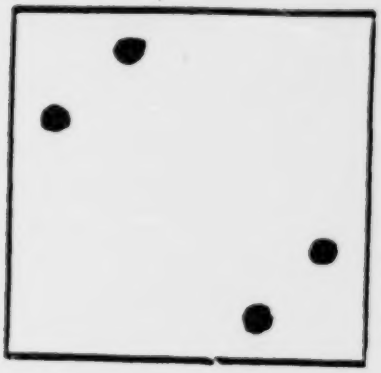
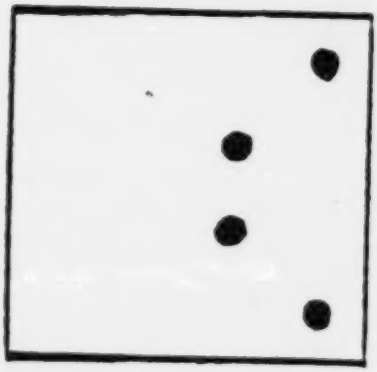


C



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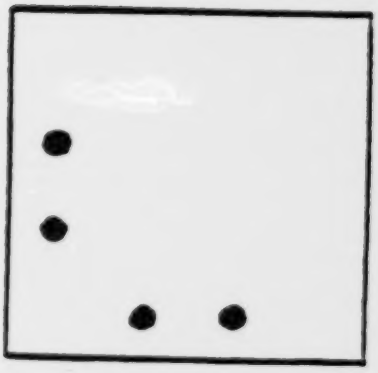

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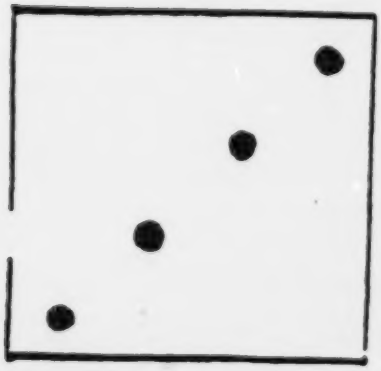
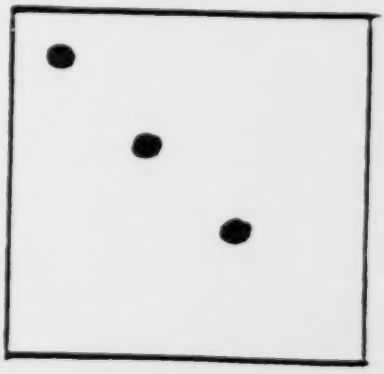


F



LIFE/HOME MATH ACTIVITIES

The following activities are not taken from the FAMILY MATH curriculum. These activities are designed to make math a part of your child's daily life. Math is not just for the classroom.

GRADES (K - 3)

Math Activities

- *Laundry Math* - Sharpen thinking skills by doing a necessary household job. Ask your youngster to sort laundry - before or after washing. How many socks? How many sheets?

- *Napkin Fractions* - Make fractions fun to learn. Fold paper towels or napkins into large and small fractions. Start with halves and move to eights and sixteenths. Use magic markers to label the fractions.

- *Weigh Me* - Teach estimating skills. Ask your children to make guesses about the weight of several household objects - a wastebasket, a coat, a full glass of water. Then show children how to use a bathroom scale to weigh the objects. Next, have them estimate their own weight, as well as that of other family members, and use the scale to check their guesses.

GRADES (4 - 5)

Math Activities

- *A Trip to the Supermarket* - Plan ahead with the 3 R's. Ask your child to choose a dish to prepare for a meal - a pudding, a salad, a sandwich. Have your child check to see what supplies are on hand and then make a written shopping list. At the supermarket, let the child select the food on the list. First, the child decides which items are the best buys on the shelves and then makes selections. Also have the child write the price of each item on the list and figure the total, checking the prices against the sales slip.

- *On the Move* - Sharpen math skills on trips. Use even short trips around town for learning experiences. For example, at the gas station, ask your child how much gas you needed and the cost per gallon. On the highway, ask children to read the signs and check the different speed limits. Then ask them to watch the speedometer readings and notice how fast or slow the car is going. Have children estimate distances between cities and check the estimates on a road map.

- *Newspaper Math* - Introduce new topics for dinnertable conversation. Ask your child to pretend to be an investor and choose a stock from the stock market pages of the daily newspaper. Have your child keep a record of the stock's progress for a week or two and then figure profit or loss. Discuss baseball and football scores and averages on the sports pages. Who are the high scorers? What are the percentages?

GRADES (6 - 8)

Math Activities

- *Managing Money* - Put math skills to work. Help your children understand living costs by discussing household expenses with them. For example, make a list of monthly bills - heat, electricity, telephone, mortgage or rent. Fold the paper to hide the costs and ask youngsters to guess the cost of each item. Unfold the paper. How do the estimates compare with the actual costs? Were they close?

- *Percentages and Decimals* - Are they really necessary? Illustrate by asking your children to look through the newspaper to find and list as many percentages and decimal numbers as possible - advertised sale prices, sports scores, bank rates.

- *Living Within Your Means* - Practice budgeting skills. Teach children who have allowances or regular spending money how to budget. Ask them to make a two-column list of expenses and income. List the allowance or spending money under income. Under expenses, list what they expect to spend for movies, records, lunches, etc. Then, have youngsters add all the expenses and subtract the total from the income. If their expenses are greater than their income, ask them to think of ways to reduce their spending to keep within their budget. If their income is more than their expenses, suggest a savings plan.

Sample Lesson Plan for FAMILY MATH

10-15 Min.	Opening Remarks
5-10 Min.	Introduce participants and trainers
5-20 Min.	Overview of Evening's Activities/Discussions of previous week's lesson and homework.
15-20 Min.	Math activity
5 Min.	Discussion
15-20 Min.	Math activity
5 Min.	Discussion
15-20 Min.	Math activity
5 Min.	Discussion
5-10 Min.	Review evening's activities. Assign homework. Comments

QUAD COUNTY URBAN LEAGUE
TOMORROW'S SCIENTISTS, TECHNICIANS AND MANAGERS
PROGRAM MODEL 4
Mentoring

PROGRAM MODEL 4 MATH/SCIENCE MENTORS FROM BUSINESS AND THE ACADEMIC COMMUNITY

TOMORROW'S SCIENTISTS, TECHNICIANS AND MANAGERS - AURORA, ILLINOIS

In 1982, there was only one African American student graduating from any high school in Aurora, Ill with a grade point average of 3.0 or above. This prompted the Quad County Urban League in Aurora, Illinois to start its own Scientists, Technicians and Managers program based upon the Tri-County (Peoria) Urban League's TSTM program. Quad County Urban League serves the counties of Kane, DuPage, Will and Kendall (the "Technical Corridor" of the state).

PROGRAM GOALS

TSTM is a program designed to motivate and assist African American and Latino youth in acquiring the prerequisite skills and knowledge needed for careers in science, technology and business. This goal corresponds with the Urban League's objective of contributing to the positive development of youth.

The Quad County Urban League TSTM has four major objectives:

1. To encourage African American and Latino students to enroll in high school courses which will prepare them for college programs in science and applied sciences.

2. To encourage and support these students through mentoring, academic tutoring, summer internships and scholarship programs.

3. To provide counseling workshops and field trips encouraging TSTM students to enter college and pursue technical careers.

4. To provide opportunities for African American and Latino students to acquire and develop personal leadership skills through participation in the TSTM club.

CURRICULUM DEVELOPMENT

TSTM is designed to serve students from the elementary through collegiate levels with its primary focus grades 6 through 12. The TSTM program acts as a supplement to the school curriculum and relies heavily on the involvement of guidance counselors, teachers and members of the community at large acting as mentors. The TSTM Advisory Committee, a 22 member committee comprised of TSTM Parents, members of the Urban League Board of Directors Program Committee, representatives of institutions providing financial support and others, provides direction for the development of specific activities.

Curriculum Components

There are six primary components in the TSTM curriculum:

1. **Academic Tutorials** assist participants in acquiring the necessary skills to successfully complete advanced courses in mathematics and science. Young professionals from the

National Association of Technicians serve as mentors and tutors in an after-school program to help the students master the basics of mathematics and science.

2. **Summer Enrichment and Training Programs** offer participants the opportunity to work in technical or science related summer jobs and/or attend enrichment programs offered by colleges and universities. Companies hire students and match them with professionals who provide mentoring, support and guidance as well as training.

3. **Curriculum Selection** provides counseling for TSTM participants in the selection of their high school courses. Mentors ensure that students are choosing courses that will prepare them for college programs in business, engineering, mathematics and science. The Quad County Urban League Executive Director and the Program Administrator regularly review student course selections and communicate with parents regarding their child's education.

4. **College and Career Counseling** provides counseling for college entrance preparation and guidance in career selection. Students also meet formally and informally with professionals to discuss college entrance requirements, financial aid, cooperative education opportunities and career strategies. This aspect of the TSTM program augments counseling available in the schools.

5. **Field Trips** allow students to interact with practicing professionals who act as role models and advisers. These trips include visits to research centers, universities, engineering firms, manufacturing sites, service industries and national meetings of business and scientific organizations.

6. **The Scholarship Incentive Program** awards annual scholarships to TSTM graduating seniors that have been active in the TSTM program for at least two years maintaining no less than a "B" average for at least six high school semesters. Also, they must have been accepted for admission by an accredited college or university and plan to pursue a career in mathematics, the sciences or business.

A Community Effort

Community support is vital to the success of the program. Creating partnerships is a critical step in developing a mentorship program that will not only help keep youth in school but help them to progress academically and create student/business relationships. Volunteers from area businesses and colleges conduct the academic tutorials for the TSTM program. Summer enrichment programs are offered through the academic community such as Minorities Interested in Technical Engineering (MITE), a week-long conference conducted on the campuses of several major colleges including Purdue University, University of Illinois and University of Notre Dame.Summer jobs and internships are provided by local corporations. Nalco Chemical of Naperville, IL received the 1988 Presidential Award for Private Sector Incentives as a result of its work with the Quad County Urban League TSTM program.

Administering The Program

Mentoring

A unique aspect of the Quad County Urban League TSTM Program, is its emphasis on and use of mentoring relationships. The continual success of the Quad County TSTM is often attributed to the far-reaching impact of mentoring.

Mentoring is an age-old process that has recently gained prominence in Education and in corporate America. Simply defined, mentoring is a one-to-one relationship over a prolonged period of time between an older more experienced individual and another person. The mentor provides consistent support, guidance and concrete assistance for the younger person.

In the TSTM program, adults and older college-age students act as mentors. A group of young minority professionals organized the National Technical Association (NTA) to serve as mentors to the TSTM students. The role of a TSTM mentor and any mentor in general, is many faceted. He/she is a motivator and a friend, role model, sponsor, teacher, counselor and advisor. Mentors differ from teachers, advisors, counselors, or sponsors in that their role is more comprehensive usually encompassing all of these roles. A teacher might be an advisor or a mentor but not necessarily so. On the other hand, a mentor is always a teacher, advisor, etc.

Specifically, TSTM mentors provide career counseling, academic guidance, and emotional support to the TSTM students. The mentoring relationships that are formed help to influence career choices through presentations, field trips, and other activities. Mentoring is reciprocal, allowing adults and TSTM participants to become involved in each other's lives. The mentor exchanges telephone numbers with the student to make sure the student has consistent contact with him or her. The TSTM mentor becomes a part of the student's life while at the same time providing an opportunity for the student to learn from different aspects of his/her life: career, work habits, discipline, past school experiences.

The commitment of TSTM mentors has been key to the program's success. The mentors are successful people and highly motivated. They are also busy people with other time demands such as careers and families. However, they want to make a difference and realize the importance of the program — developing the future of African American and Latino students in the Quad County community.

Regular Meetings

The TSTM club meets once a month throughout the year. Participants are recruited through local schools and by personal referrals from the community. Candidates submit letters of recommendation from two teachers and must provide a transcript of grades. Similar to the Peoria TSTM Model Program, the club elects officers and requires that members be in good standing to take full advantage of field trips, mentoring relationships and scholarships.

A typical meeting of the TSTM Club may include a lecture by a guest speaker on a topic of interest to the members. The students are encouraged to ask questions concerning them on a personal and professional level. The discussion might lead to advice on planning and selecting college courses or identifying the best academic institutions for one's chosen career. The guest speaker might also participate in the tutorial program. Visits by guest lecturers often lead to field trips by TSTM members.

CHIME

Another component of the Tri-County TSTM is CHIME (Chemical Industry Interested in Minority Engineers). CHIME is funded under a separate proposal and conducts seminars once a week to introduce students to careers in Chemical Engineering. A copy of the CHIME proposal is included in the Resource Section for this model program.

PROGRAM EVALUATION AND IMPACT

The methods of evaluation used by the Quad County Urban League TSTM program are nearly identical to those of the Peoria TSTM program on which it is modeled. One unique method of evaluation used by the Quad County Urban League is the student opinion survey. On this survey, the influence of mentoring is consistently prominently ranked.

Academic Tracking

At the beginning of the academic year, each TSTM Club member is required to complete a TSTM Confidential Information Release allowing the program to obtain Achievement Test Scores and school transcripts. TSTM program staff also receive a copy of the student's grade report at the end of each grading period. These are used to determine if the students and the TSTM Program are working toward achieving stated program objectives.

The affiliate keeps record of the following:

1. The number of participants pursuing college degrees upon graduation.
2. The number of students pursuing careers in math and science.

By gathering this information over time, the affiliate can determine the overall impact of the program on the community. A sample Information Release and TSTM Application appear in the Resource Section for this model.

Impact On Achievement

According to the Program Director, the activities that have had the most significant impact on participants are:

1 Academic tutorials and,

2. Exposure to individuals and occupations that utilize math and science.

Meeting professionals and former TSTM participants who have gone on to pursue careers and courses of study in mathematics and science serve as continual illustrations to TSTM participants that African Americans and Latinos can excel in technically oriented disciplines. Regular counseling on effective work and study habits bolsters students' confidence in their own abilities. Exposure to professions rewarding competence in maths and sciences provides students tangible justification for developing their potential in these areas.

Impact On The Community

TSTM has rallied the entire community behind an important crusade: the future of the community's African American and Latino children. Teachers, parents, industry and others have combined efforts to increase the likelihood of these students participation in highly rewarding professions.

The public school system has greatly benefitted from the TSTM Program. TSTM tutorial strengthens students' academic performance and possibly of greater significance, students come into the classroom mentally motivated to tackle previously "challenging " subjects.

PROGRAM EFFECTIVENESS

Program effectiveness is measured in three ways: Student Participation, Program Growth and Development, and Community Involvement.

Student Participation: The degree to which a student participates in TSTM activities is a measure of the program's effectiveness. The Quad County Urban League TSTM adopted a

point system designed to measure member participation similar to the measuring system of the Tri-County Urban League TSTM Program. A full description of the TSTM Point System appears in the Resource Section.

Program Growth and Development: Another measure of program effectiveness is the ever increasing number of students participating in the program. In 1992, the number of students participating in the program more than doubled over the previous year. The Program Director attributes this to word of mouth among the student population and to a significant increase in the number of Latino students participating in the TSTM program.

Community Involvement: The overwhelming support that the Quad County Urban League TSTM program receives on its volunteer committees is a significant indication of its impact and effectiveness.

PROGRAM SUPPORT

The Quad County Urban League General Fund supports the TSTM program. The affiliate also receives grants and other financial support from outside funding sources for TSTM as a result of the program's success. Unlike Tri-County (Peoria) TSTM participants, Quad County participants do not contribute to the program by paying club dues.

Staffing The TSTM Program

The Quad County Urban League TSTM Program Director is the only paid full-time staff for the program. The program operates primarily through the use of volunteers coordinated by the Program Director. The following volunteer committees function as the backbone of TSTM:

TSTM Advisory Committee - a 22 member board providing direction and support for the TSTM program; made up of members of the Urban League Board of Directors, parents of TSTM students, school administrators, corporate representatives, and professionals in the fields of mathematics, science and technology.

TSTM Program/Planning Sub-Committee - develops and monitors the program, including curriculum, field trips and recruitment of students and tutors. Several TSTM students serve on this committee. A planning document of the Quad County (Peoria) Urban League TSTM Programs Committee appears in the Resource Section for this model.

TSTM Finance Sub-Committee - works with the Advisory Committee to raise funds for TSTM. This committee also prepares and administers the budget for the program.

TSTM Parent Group - comprised of the parents of TSTM students. They assist with program planning and fund raising.

TSTM Speakers Bureau - meets with community groups to publicize TSTM.

IMPLEMENTING YOUR OWN TSTM PROGRAM

The TSTM Program Director for the Quad County Urban League encourages affiliates interested in the program to be visionaries. "Do not allow your children to live in a community without potential. Use the Tomorrow's Scientists, Technicians and Managers program to take your community where you want it to go."

RESOURCE MATERIALS
for
MODEL 4
QUAD County Urban League
Tomorrow's Scientists, Technicians & Managers

Mentoring Resources

Mentorship Guide: A complete guide on how to set up a mentorship program, A San Diego Partnership sponsored by IBM, San Diego Consortium & Private Industry Council, San Diego, CA, 1991.

LinkLetter: a newsletter of Linking Lifetimes, a national mentoring initiative, the Center for Intergenerational Learning, Temple University, Philadelphia, PA.

The Mentoring of Disadvantaged Youth, ERIC Clearinghouse on Urban Education Digest, Number 47, September 1988, Teachers College, Columbia University, New York, NY.

RESOURCE MATERIALS
for
MODEL 4

Quad County Urban League
Tomorrow's Scientists, Technicians and Managers

1. **TSTM Program Description and Organizational Chart Programs Committee Outline for 1991-2.**

2. **CHIME Proposal.**

TOMORROW'S SCIENTISTS, TECHNICIANS, AND MANAGERS PROGRAM

QUAD COUNTY URBAN LEAGUE
305 E. BENTON
AURORA, ILLINOIS 60505

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I. NARRATIVE DESCRIPTION OF PROGRAM

A. Nature of the Problem

The Tomorrows Scientists, Technicians, and Managers Program (TSTM) is designed to motivate, encourage, and assist minority youth in the educational pursuit of careers in science, technology, and business. TSTM was developed in response to the need for increased numbers of minorities entering the scientific, technical and/or business labor markets. The following evidence elucidates the problem:

1. There is a critical shortage of minorities available to meet the criteria for employment in professional careers, i.e., technical, managerial, and administrative positions. As a case in point, close examination of the percentage of blacks receiving various degrees in scientific, technical and business fields of study unveils disparaging results. U.S. statistics show that of all the degrees awarded in the physical and life sciences in 1978, blacks received 1% of the bachelors, .7% of all masters, and 3% of all doctorates. A similar situation exists in engineering, where blacks received only 3% of bachelors, 1% of all masters, and 1% of all doctorates. Since that time there has been a sharp reduction in the financial assistance available to minority students; therefore these percentages are much lower

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A. 1. (Cont'd)
when measured against today's student population. The probable trend will find an insufficient number of minority students entering and completing scientific, technical, or business courses of study and subsequently pursuing careers in these technical areas.

2. These highly skilled occupations are the very ones which currently, as well as in the future, are expected to experience considerable growth. Recent forecasts indicate that it will be several years before the Fox Valley industries begin to realize the hiring levels experienced three to five years ago. Further, when they open the doors looking for new employees, they will hire the students who have strong technical and/or business backgrounds. They will seek out and hire those students who have completed courses in accounting, computer science, algebra, geometry, chemistry, physics, trigonometry, and/or calculus. Personal contact with the two Aurora public high schools indicates that less than 3% of the black students are enrolled in or targeted for these types of courses.

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A. 2. (Cont'd)

It should be further noted that private sector companies have expended a great deal of effort to recruit minorities for technical occupations. According to these companies the results of their efforts have been marginal.

Thus, it can be concluded that steps must be taken to get a better match between the availability of minority employees and opportunities. Moreover, if minority students are to be brought into full and equitable utilization in the highly skilled occupations, there is a need to begin to identify and develop local talent.

TSTM's target population includes primarily minority students within the Aurora metropolitan area. TSTM will serve not only the achiever, but also the average student who lacks motivation or encouragement. Although, in the broad sense, TSTM will serve students at the elementary, secondary, and college levels, the core of TSTM will be the TSTM club which will consist of students enrolled in grades eight through twelve. In order to retain a member in good standing of the TSTM club, a student must enroll in college preparatory courses, English, math and/or science, each semester and maintain a "B" average in these subjects. The club members will be constantly monitored to ensure high academic performance.

A. 2. (Cont'd)

There are no economic criteria for participation in TSTM. In fact, the program has been purposely designed to serve students on various levels of the soci-economic scale.

B. Major objectives of the program

1. To encourage minority students to enroll in high school courses which will prepare them for college programs in science and applied sciences.

2. To encourage and support minority students through academic tutorials, summer internships and scholarship programs.

3. Provide counseling workshops and field trips to encourage TSTM students to enter college and pursue technical careers.

4. To provide opportunities for minority students to acquire and develop personal leadership skills through the structure and activities of the TSTM club.

C. Overall goal of the program

Consistent with the Urban League's overall objective of contributing to the constructive development of youth, the objective of TSTM is to motivate, encourage, and support the target group of minority students so that they can acquire the prerequisite skills and knowledge

C. (Cont'd)
needed for careers in science, technology, and business; or other options such as vocational training, apprenticeships or at least a strong academic background in the 3 R's.

The anticipated results will be an increased number of local minority students:

1. Enrolling in math, science, and English at the secondary level.

2. Appearing on the academic honor rolls and achieving leadership positions within the area schools.

3. Enrolling in college, universities, vocational or technical training programs and pursuing majors in science, technology, or business.

4. Qualifying to pursue careers in science, technology, and business.

II. MAJOR RESOURCES

A. Part-time Program Support Staff

Executive Director
Clerk typist
Tutors (English, Math and Science)

B. Volunteers

TSTM Advisory Committee - 22 Member Board

5 - Members from Urban League Board of Directors - Program Committee Representative plus four persons selected by the Board
2- Parents of TSTM students
2- Members of School Administration (East/West)
8- Representatives of Industrial Institutions providing financial support and/or employment opportunities for TSTM students
4- Program/Planning - professionals in fields of science, technology, management and education (include one TSTM student)
1- AAUL Executive Director

Purpose: To provide direction and support for the TSTM program. As an AAUL program this activity should be consistent with the policy approved by the AAUL/BOD.

TSTM Program/Planning (Sub-committee)

Develop and monitor program. Assist AAUL Executive Director with the program administration. Maintain liason with the AAUL/BOD on policy matters. Prepare curriculum for next six months, select field trips, identify and select students and tutors (TSTM students will serve on this committee).

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B. (Cont'd)

TSTM Finance (Sub-committee)

Work directly with Advisory Committee to raise funds to insure long-term financial solvency. Prepare TSTM program budget in conjunction with AAUL Finance Committee and maintain permanent link with program underwriters; seek out new sources of funds. Program funds will be maintained in a restricted account and administered by the AAUL Board. TSTM program would bear the cost of auditing these funds.

TSTM Parent Group (Sub-committee)

Comprised of all of the parents of students attending TSTM functions (not restricted to parents of TSTM pilot group). Purpose: to provide additional input and assistance to the program planning committee and assist the finance committee with fund raising events.

TSTM Speakers Bureau (Sub-Committee)

External speakers to inform the community of TSTM's purpose and existence.

NOTE: Sub-committee membership is open to any interested party; however, the chairman must be a member of the TSTM Advisory Committee.

C. Office Space Requirements

Study area for tutoring activities
Meeting room for TSTM Advisory Committee,

D. Equipment

Desks
Tables
Chairs
Copier
Chalk Board

E. Telephone

III. Nature of the service activity

TSTM is designed to serve minority students from the elementary through collegiate level with primary focus on grades 9 through 12. TSTM program functions as a supplement to the structured school system and relies heavily on the cooperation of guidance counselors, teachers, and the community at large. Basic to the TSTM approach is the early inclusion of educational materials such as accurate information as to the kind of work scientists and technologists perform, the academic requirements for entering into these professions, and employment prospects.

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Students are recruited through direct contact with the schools, youth servicing agencies and referrals by TSTM participants and interested parents. The majority of the students served through TSTM will reside in the Aurora area.

1. Academic Tutorials

A special tutoring program is provided to assist TSTM students acquire the necessary skills and perspectives to successfully complete advanced courses in mathematics and science. Tutoring will be conducted by practicing professionals or area college students, depending upon the degree of difficulty of the course.

2. Summer Enrichment and Training Program

Summer will offer opportunities for further awareness of career options as well as providing financial assistance for TSTM students. Where possible, summer jobs that have scientific or some form of technical orientation will be arranged for the student. However, it will not be possible to arrange summer employment for all TSTM students. We will continue to offer Saturday classes during the summer which will be designed to prepare students for technical courses that they will take

2. (Cont'd)
during the next school term. Students will be informed about week-long MITE programs (Minorities Interested in Technical Engineering) conducted on several major campuses such as Purdue, Univ. of Illinois, and Notre Dame.

3. Curriculum Selection

Special counseling is provided for TSTM students in the selection of their high school courses of study. The TSTM program planning committee regularly reviews the program of their students and communicates with parents to ensure that the students are choosing courses which will prepare them for college programs in business, engineering, mathematics, sciences, medicine, and other related careers.

4. College and Career Counseling

The TSTM program provides special counseling for college entrance preparation and guidance in career selection. This serves to augment the counseling normally available to all students in the schools. TSTM students meet both formally and informally with professionals to discuss college entrance tests, admission requirements, financial aid, co-op programs, and career opportunities.

5. Field Trips

Field trips will be designed to allow students to interact with practicing professionals. Experiences will include visits to research centers, universities, engineering firms, manufacturing plants, service industries, and national meetings of business and scientific organizations.

6. Scholarship Incentive Program (Implement 1985)

Incentive scholarships will be awarded annually to TSTM students who meet the following criteria:

a. Has been an active member of TSTM for at least 2 years and is a graduating senior.

b. Has maintained at least a "B" average in English and math or science for at least six high school semesters.

c. Has been accepted for admission into an accredited college or university with plans to pursue a career in keeping with the ideals of TSTM.

7. Recognition/Orientation Program

An awards program in the fall recognizes those TSTM students, parents, and volunteers who have participated in the program. This program also will be used as an orientation for new TSTM members and their parents.

8. Student Selection Criteria

Short Range 1983-1984

a. Students will be selected from the freshman* class of the two Aurora Public High Schools.

b. Students must be enrolled in Algebra or Geometry, English and/or Science.

c. Students' must satisfactorily complete an interview process.

d. Students must be willing to make a commitment to this program.

Long Range (1985)

Advisory Committee to establish guidelines

*Students enrolled in eighth grade Algebra will also qualify.

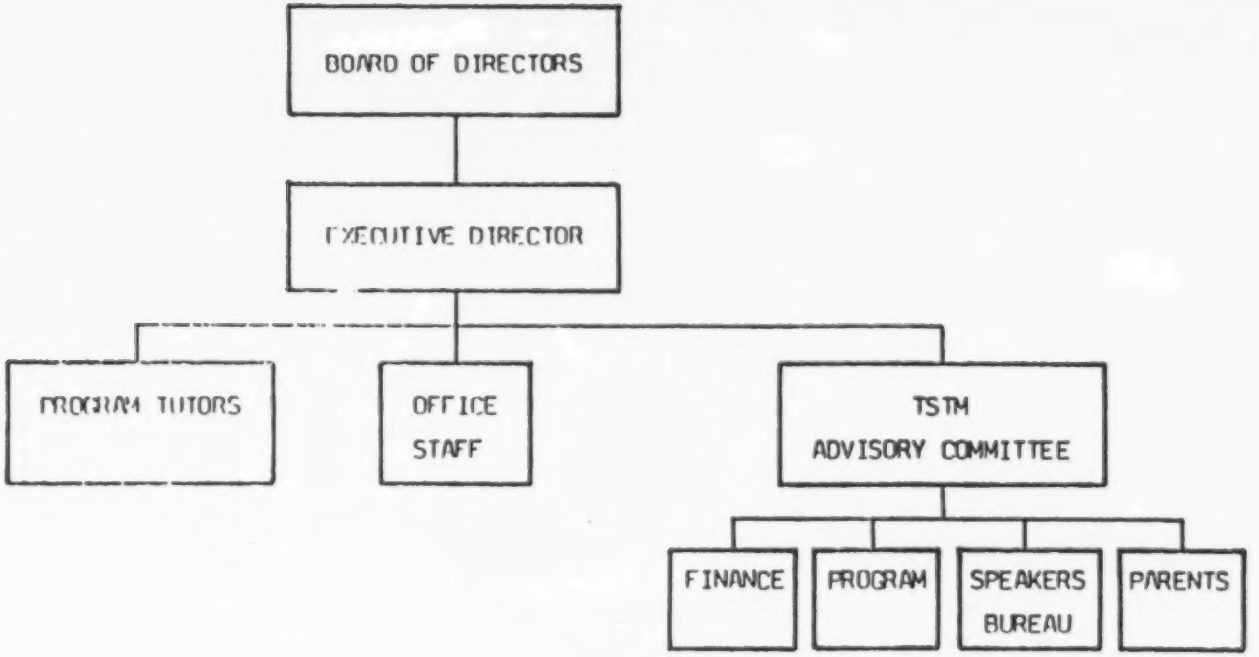
9. AAUL Steering Committee

The initial program planning will be carried out by the Steering Committee comprised of the following individuals:

Dr. Donald Nylin - Chairman
Mr. Uyless Jenkins
Mr. William Skoglund
Ms. Geraldine Royal
Dr. Helen Hatchett
Dr. Charles Ponquinette
Dr. Elliott Treadwell
Mrs. Kathy Jackson
Mr. Willard Wright
Mrs. Cynthia Miller - Advisor
Ex-officio - Ms. Magnolia Brison
Ms. Daphne Odom

AURORA AREA URBAN LEAGUE

TSTM ORGANIZATION CHART



TSTM PROGRAMS COMMITTEE
1991/1992 High School Students Activities

Theme- Professionalism: Erasing The Mystique

- **Individual goal setting each year**
- **Program committee counseling / Mentoring**
  (Each student must communicate with their mentor at least once a month)
  1. **Curriculum Planning (at beginning of each semester)**
  2. **General Mentoring**
  3. **Goal Setting assistance**
  4. **Writing Program**
     - — After each activity, students are required to prepare a creative writing assignment (paper, poem, essay, etc.)
     - — Selected papers (~3) will be presented at the end of the next club meeting. All papers must be returned at end of next club meeting.
     - — The parent committee will designate a committee member (other than the parents of the presenters) to judge the presentations.
     - — Best creativity writing submission will be awarded a certificate (valued <= $10)
  5. Science Program
     - — Programs committee will choose 4 science projects for 4 teams.
     - — Students will be allowed to choose the project to work on.
     - — Students will be given 1 month to complete project.
     - — Projects will be judged; team winners will receive a plaque at the TSTM Awards Banquet.
     - — Each winning team member will receive a certificate.
  6. Career Assessment Program
     - — Each student will be required to set an individual career goal at the beginning of the school year (September).
     - — Throughout the year, activities will be planned to provide the students with information on their various career goals such as:
       1. speaker presentations on careers of interest,
       2. college and company visits,
       3. mandatory library visits (4/yr-Sept, Oct, Nov, and Jan - with mentors and an after-pizza party to follow)
       4. mandatory reading assignments (books must be approved by mentors)
     - — Students will be required to prepare a research paper on their area of interest. Paper must be turned in by February at the Career Day event.

— Each student must present their paper at the Career Day event (~5 minutes long)

— The program will start with a Kickoff event -- a skills assessment test.

7. Career Day
8. College Admissions Preparations
   - — Provide college applications
   - — Assist in filling out applications
   - — Assist with Financial Aid applications
   - — October event: Senior Checkup
   - — February event: for all students
9. Other Programs
   1. PSAT/SAT/ACT Tutoring
   2. Computer Camp (dependent on NTA agenda)
   3. Sexuality Workshop (dependent on AKA Sorority and Alpha Fraternity)
   4. CHIME
   5. Urban League Essay contest
   6. College Trip

1991/1992 Elementary School Students Activities

Theme-??

- Program Committee Counseling/Mentoring
  1. General mentoring
  2. Tutoring
- Writing Program
- Science Program
- Computer Camp
- Reading Requirement
  - — Students will be required to read a mentor-approved book and present an creative writing assignment on it (date will be set on an individual basis).
- Goal Setting Through Self-Assessment
  - — "Mirror" Scrapbooks

P R O P O S A L

1 9 9 1 C H I M E W O R K S H O P

"CHEMICAL ENGINEERING - THE FORMULA FOR ADVANCEMENT IN TECHNOLOGY

BY

TOMORROW'S SCIENTISTS, TECHNICIANS, AND MANAGERS

QUAD COUNTY URBAN LEAGUE

AND

AURORA UNIVERSITY

347 SOUTH GLADSTONE

AURORA, ILLINOIS 60506

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I. INTRODUCTION AND BACKGROUND

The Tomorrow's Scientists, Technicians and Managers Program (TSTM) is designed to serve as a tool to motivate and encourage minority youth who have the ability to acquire necessary education skills required for careers in science, technology, and business. The TSTm program works closely with parents, teachers, career counselors, and administrators of corporations, and local schools in Kane, Dupage, Will, and Kendall counties. Major elements of the program area: academic tutorials, summer training, guidance in high school course selections, college and career counseling.

The TSTM club is an organization composed of 85% black and 15% spanish high school freshman through seniors. All students are enrolled in English, Math, and Science courses. TSTM students receive support in technical courses such as, algebra, geometry, chemistry, physics, trigonometry, and calculus. Year round activities are planned for students in order to prepare them for careers in science, technology, and business.

The TSTM Summer Workshop is entitled: "Chemical Engineering-The Formula for Advancement in Technology." The purpose of the workshop is to provide a concentrated period in which minority high school students who have just completed their freshmen and sophomore years have an opportunity to gain knowledge of careers in the field of chemical engineering. The main features of the workshop are lecture/discussion, laboratory sessions and visits to

those are industrial corporations, who depend heavily on chemist/chemical engineers. The program will run 5 days.

The proposed 1991 CHIME Workshop will be held at Aurora University. The funding for the program is being sought from the CHIME organization. A detailed budget for the workshop is provided in this proposal. Some details of the 1991 CHIME Workshop follow.

II. WORKSHOP FORMAT

The detailed tentative schedule for 1991 workshop is given in Appendix I. The key elements are lecture/discussion, laboratories, seminars (guest speakers) and plant trips. These varied activities will designed to emphasize the employment opportunities in chemical industry, with a special notation on the chemical engineer in the problem solving role.

The lecture/discussion will focus on information necessary to understand the field of chemical engineering, slides, demonstrations and discussions will be used to stimulate the student's interest. The sessions will start at a rudimentary level and progress to challenge the student participants. lectures will be supplemented by selected readings, instructional materials, and controlled experiments.

Laboratories will emphasize hands-on activities and experiments will be performed to illustrate important principals in distillation, the flow scheme of the chemical process on a plant wide scale, and crystallization. A session involving the use of a personal computer to stimulate chemical engineering problems will also be employed.

Plant trips will form an important part of the workshop, because of the difficulty of explaining the work of the chemical engineer in a strictly academic setting. The plant trips will be carefully planned reinforce the most recent topic discussed. This is necessary in order to challenge high school students and to show the diversity of opportunity for the chemical high school students and to show the diversity of opportunity for the chemical engineer. The Director of the project will confer with plant personnel before the workshop to find out what type of processes will be shown so that background information can be incorporated into the lecture/discussions before the actual plant trip takes place. In this way the students will have a greater appreciation for the process being considered.

Seminars will involve minority chemical engineers and college chemical engineers majors in an active discussion of career opportunities and of preparation for college and engineering careers.

Minority role models will be a social occasion which will include an introduction to the field of chemical engineering and career opportunities.

III. PROJECT PERSONNEL

The Project Director, the TSTM Program Director will be assisted by Norman E. Thomas, Assistant Professor of Chemical Engineering and Chemistry (Iowa State University) during the proposed workshop.

Staff members from Aurora University, Northern Illinois University, and University of Illinois, Champaign/Urbana will be

involved in the lecture/discussions and laboratories. Guest lecturers will discuss chemical engineering in the areas of food processing, pharmaceutical, crystallization, and oil refining.

As a supplement, the services of minority chemical engineering students will be employed to assist in the preparation of student manuals, discuss college selection and preparation, and help in setting up the laboratories. Carefully selected industrial participants will be involved in the site visits to local plants.

APPENDIX I

WORKSHOP SCHEDULE

CHIME 1991

CHIME: 1991

WORKSHOP SCHEDULE

DATE		INSTRUCTOR
SUNDAY, JUNE 16		
4:00 - 5:00	Introduction and Organization	G. Miller
5:00 - 6:00	CHIME - Audio Slide Presentation	
6:00 - 7:00	Representative from Industrial Corporations as Role Models	
MONDAY, JUNE 17		
9:00 - 10:30	University of Illinois, Champaign-Urbana, Preparation for College and Educational Requirements for Chemical Engineering	U of I Staff
10:45 - 11:45	Computer Modeling	U of I Staff
12:00 - 4:00	Visit to Process control Lab, (Unit Operations Laboratory U of I Research Projects)	
TUESDAY, JUNE 18		
9:00 - 10:00	Applied Chemistry Lecture I	Aur/Univ/Stf
10:45 - 11:45	Visit to Universal Oil Products (UOP)	UOP
1:30 - 4:00	Role of a Chemical Engineer in the Production Process (UOP)	Dr. N. Thomas
WEDNESDAY, JUNE 19		
9:00 - 11:45	Visit to Oil Company, Lecture From a Representative of the Company - Oil Refining, Layout Of Piping, and Heat Exchanger	Amoco/Oil/Stf
THURSDAY, JUNE 20		
9:00 - 11:45	Overview of Chemistry-How to Study Chemistry Texts: Note Taking, Experiments-Importance	Dr. N. Thomas Aur/Univ/Stf
1:30 - 4:00	Visit to Dow Chemicals;	Dow/Chem

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	Lecture From a Representative of the Company	Engineer

FRIDAY, JUNE 21

9:00 - 11:45	Visit to Nalco Overview of Processes	Staff

FRIDAY, JUNE 21

7:30 - 9:00	Parent/Student Evening